

## **Chapter 2      Alternatives Including the Proposed Action**

In this chapter, the National Environmental Policy Act (NEPA) and national and regional fisheries management policy are reviewed to give the reader a broad understanding of fisheries policy—how it is conveyed, what it means, and how it is currently applied to the groundfish fisheries. In Section 2.3.2, the principle laws that govern fisheries management in the United States are reviewed. In Section 2.4 the programmatic alternatives, which are policy statements presented as frameworks to afford flexibility are introduced. The current policy statements of each fishery management plan (FMP) as well as the actions taken by the North Pacific Fishery Management Council (the Council) over the last 10 years. Together, this review of current policy serves to contrast alternative policies that, while similar, each emphasize one set of objectives more heavily than others, and cover the range of issues raised during the scoping process.

Beginning with Section 2.7, the federal action of this programmatic supplemental environmental impact statement (SEIS) Alaska groundfish fisheries and their management. This section serves to educate the reader to the environmental conditions and the state of the groundfish fisheries prior to the Magnuson-Stevens Fishery Conservation Management Act (Magnuson-Stevens Act) and how the FMPs have evolved over time as new issues and new information have come to the forefront of policy decisionmaking. Considerable detail is provided on the Bering Sea and Aleutian Islands (BSAI) and Gulf of Alaska (GOA) Groundfish FMPs, the fisheries, and the management-Council process. Chapter 2 concludes with summaries of requirements and actions taken to comply with essential fish habitat, the Endangered Species Act, and the Marine Mammal Protection Act.

### **2.1      National Environmental Policy Act Guidance for Alternatives**

The NEPA process, once triggered, requires that the environmental impacts of a federal action be evaluated under a wide range of prospective management actions. As described in Chapter 1, in this case the federal action is the fishing activities authorized by the BSAI and GOA groundfish FMPs. Six alternative management actions are proposed in Section 2.4. The impacts of these alternatives are evaluated from information and analysis presented in Chapter 3 (Affected Environment) and Chapter 4 (Environmental and Economic Consequences). Chapter 4 presents the issues and impacts, thus providing the basis for choice among alternatives by the decisionmakers and the public.

## **2.2 Background Specific to Understanding This Federal Action**

The President's Council on Environmental Quality (CEQ) and the National Oceanic and Atmospheric Administration (NOAA) define a programmatic environmental impact statement (EIS) to be an analysis of alternative management policies or programs (national or regional). NOAA's own NEPA guidelines (NOAA Administrative Order 216-6 Section 5.09a) state that "a programmatic environmental review should analyze the broad scope of actions within a policy or programmatic context by defining the various programs and analyzing the policy alternatives under consideration and the general environmental consequences of each."

The current, or status quo, groundfish fisheries management policy is structured as a framework composed of a number of management goals and objectives. This framework provides the flexibility needed to manage this very dynamic fishery, which is supported by a complex and similarly changing ocean environment. This management framework also accommodates changes in how the public values the resources and the priorities it places on how to best utilize and protect all the nation's natural resources. It also allows decisionmakers to balance competing management objectives and priorities.

NEPA requires that resource managers identify and evaluate alternatives to the status quo. Because no formal proposal is before the North Pacific Fishery Management Council (the Council) or the National Marine Fisheries Service (NMFS) that outlines a new or alternative management policy, NMFS developed a new policy framework that attempts to capture values and objectives expressed through public scoping of this SEIS, and in other forums while remaining consistent with the Magnuson-Stevens Act and other applicable federal law (see Section 2.3). The purpose of amending the FMPs to incorporate this new policy framework is to elevate key ecosystem issues to the forefront of the fisheries decisionmaking process.

This programmatic SEIS is intended to provide agency decisionmakers and the public with information that will be useful in making future policy decisions. This document will be a valuable reference and planning tool in the years ahead as decisions are made about whether to change the current management regime and the specific changes required to address the needs and values of the United States and its citizens. It is anticipated that this SEIS will serve to highlight the strengths and weaknesses of the current management regime and stimulate new initiatives for improvements to management and research.

## 2.3 Management Policies and Objectives

A general overview of federal policies relating to marine fishery conservation and management is useful to fully understand the differences among the programmatic alternatives. The following sections describe these national policies as they are stipulated in federal statutes and other applicable law.

### 2.3.1 Origins of U.S. Fisheries Policy

Fisheries management in the United States is carried out in a cultural and legal context that guides what various management measures are selected and how they are implemented. All changes in the rules that govern fisheries—regardless of whether they emanate from fishing industry, environmental or other interest groups or even from Congressional mandates—ultimately are refracted through a legal framework and procedure before they are fully and finally implemented. This framework is based to a large extent on a legal principle known as the “public trust doctrine.”

The public trust doctrine is a principle of common law that reflects certain political and cultural concepts pertaining to natural resources. Based first on Roman law and then on English common law, the principle asserts that certain resources, such as the air and the water in rivers and oceans, are incapable of private ownership and control. Fish swimming freely in rivers and oceans, by extension, are included in the principle. In medieval England, running water, the air, the sea, the shores of the sea, and the right to fish in the rivers and sea were considered common to all by “natural law.” The Crown held these resources in trust for the benefit of the nation as its sovereign right and responsibility. When the original United States successfully defended their independence from England in the late eighteenth century, they assumed the trust authority of the Crown over navigable waterways within their borders including the fish within these waters. In an early public trust law suit, the New Jersey court in 1821, reaffirmed the nature of the sea and the fish as “common property” to be held and regulated for the common use and benefit of the sovereign. This reasoning subsequently was adopted by the U.S. Supreme Court (*Arnold v. Mundy*, 6 N.J.L. 1 [1821]; *Martin v. Waddell*, 41 U.S. [16 Pet.] 367 [1842]).

In its study of individual fishing quotas as a fishery management tool, the National Research Council (1999) reviewed the development of the public trust doctrine as it relates to fisheries from its initial use in medieval England to contemporary views in the United States. Three critical attributes of the principle are described in this review:

1. The public trust is inalienable;
2. The government, as trustee, has continuing authority and responsibility for stewardship of the natural resource held in trust for the public;
3. The public trust applies to fisheries as a natural extension of trust responsibility for water resources, submerged lands, and other wildlife.

The following summary of these attributes focuses on the first two, and the third becomes evident throughout this discussion. The first attribute, that the public trust is inalienable, stems from early English law in which the public right to certain common resources, such as air, the sea, its shore and its resources, were reserved for the public good and could not be transferred to another person or separated from the Crown. This principle was upheld by the U.S. Supreme Court when it struck down a legislative grant of the Chicago waterfront to a private railroad (*Illinois Central Railroad v. Illinois*, 146 U.S. 384, at 453–454). In this case, the Court maintained that the state cannot place public trust property entirely beyond the direction and control of the

state. While the state may grant rights to extract public resources, the state cannot abdicate its ultimate responsibility for the resources involved. A corollary regarding fish is that the public trust principle applies to the resource in its natural state but that a fisherman acquires title to fish once they have been reduced to his possession, i.e., when he catches them.

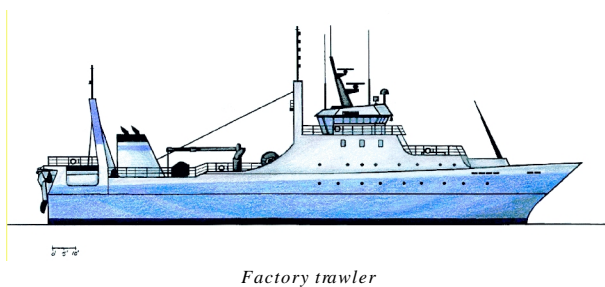
The second attribute, that the government has continuing authority and responsibility for stewardship of natural resources held in trust for the public, indicates a constraint on the powers of government in overseeing the use of the resource. In resolving a water diversion issue in 1983, the California Supreme Court maintained that it was the duty of the state “to exercise a continuous supervision and control over [its] navigable waters,” and that no right exists for any person to divert those waters “once it becomes clear that such diversions harm the interests protected by the public trust” (*National Audubon Society v. Superior Court*, 658 P.2d 709 [Cal. 1983]). A later case extended this duty to supervise, control and protect fish resources as a legislative exercise of the public trust (*California Trout, Inc. v. State Water Resources Control Board*, 207 Cal. App. 3d 585 [1989]). Over time, this responsibility to govern the use of natural resources has been confused with state “ownership” of natural resources. In a landmark late nineteenth century case, *Geer v. Connecticut* (161 U.S. 519 [1896]), the U.S. Supreme Court sparked a long debate about the respective powers of the state and federal governments over wildlife. In this case, the Court found that the state had the “right to control and regulate the common property in game as a trust for the benefit of the people.” However, this authority existed only insofar as it was compatible with “the rights conveyed to the federal government by the Constitution.” Taken to its extreme, the concept of state ownership would obviate federal wildlife law (Council on Environmental Quality, 1977). The Court later rejected the precept that a state “owns” its wild animals in the conventional sense of ownership. Rather, the contemporary view is that no state has title to fish as personal property, but that “ownership” by government is limited to the state’s sovereign capacity as trustee for the benefit of its citizens. As such, the government not only has the right, but the responsibility, to protect these resources from overuse or habitat degradation for the benefit of the people represented by the government (National Research Council 1999).

Other cultures did not necessarily subscribe to the western or European concept that fish and wildlife are *res nullius*, *res communis*, at once owned by no one and everyone, and therefore must be protected and managed for the common good by the government. For example, in southeast Alaska, the native Tlingit culture perceived ownership of fishing rights as inherent to the tribal and family groups or clans within a geographical area (Rogers 1960, also see Section 2.7.1.2). Not surprisingly, this native culture of ownership of natural resources clashed with the western perception that natural resources were incapable of ownership and therefore “up for grabs” when Americans and Europeans first began to develop the salmon and other resources in Alaska. In 1885, a German geographer observed that the Tlingit people were divided into tribes and clans, each with its separate hunting and fishing grounds, the rights to which (as late as 1934) were recognized by other clans (Mitchell 1997). In one particular incident in 1890, Tlingit natives prevented the American schooner *Active* from fishing in Sitkoh Bay on the southern tip of Chichagof Island because the natives claimed an exclusive right to the salmon that spawned in the rivers that emptied into the bay (Price 1990). The issue was temporarily resolved when the civil authorities in Sitka issued certificates to native fishermen that purported to guarantee their exclusive right to fish in certain waters. The issuance of these certificates promptly stopped, however, when white residents of Sitka railed at this violation of western culture, arguing that “there is not the slightest foundation of law for such action on the part of our civil officers” (Mitchell 1997). Obviously, the “community ownership” model on which at least these Alaska Natives relied for many generations was in direct conflict with, and soon gave way to, the more western model of “national ownership” inherent in the public trust principle. Within 20 years after the incident at Sitkoh Bay, the public trust model of western culture was boosted by the early conservationist arguments of Gifford Pinchot, in which he asserted the government’s right and duty to control the use of natural resources for the greater prosperity of the public (Mitchell 1997).

### 2.3.2 Current Federal Statutes and Mandates

The legal basis for the federal government to conserve and manage marine fisheries in the U.S. Exclusive Economic Zone (EEZ) is founded on the principle of western society known as the public trust doctrine. Because the public trust principles apply to the fisheries in the federal EEZ waters, the federal government has the responsibility to conserve those fishery resources for the overall benefit of the people of the United States. Conservation of any biological resource, such as a fishery resource, implies imposing constraints on the use of the resource to prevent its destruction and provide for its sustained availability to current and future fisheries. Benefit implies an economic or socioeconomic objective which may not be consistent with conservation objectives. Hence, the federal public trust responsibility often is carried out by implementing management policies that reflect a fine balance between conflicting interests. Rarely does a fishery management policy maximize one particular objective—whether related to biological conservation or generation of economic wealth—over all others, except when the risk of severe depletion of a resource is at stake.

The formulation and implementation of all federal fishery management policies are guided by, and must comply with, the limitations and procedures stipulated in the body of federal statutes and executive orders described in this section. Currently, these include 11 statutes and 6 executive orders. Some of these mandates speak directly to the conservation or management of fishery resources, but most are directed at ensuring the fairness and equity of fishery management measures and that potential environmental, economic, and social effects of these mandates are considered before they are adopted. The executive branch's responsibility for compliance with these mandates resides primarily with the Secretary of Commerce and has been delegated largely to the National Marine Fisheries Service (NMFS), one of the five agencies of the National Oceanic and Atmospheric Administration (NOAA) in the Department of Commerce.



#### **Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act)**

The Magnuson-Stevens Act is the principal federal statute that provides for the management of U.S. marine fisheries. Originally enacted as the Fishery Conservation and Management Act in 1976 (Public Law 94-265), this law was arguably the most significant fisheries legislation in U.S. history. It has been amended

periodically since 1976; most recently in 1996, by the Sustainable Fisheries Act (Public Law 104-297). The basic concepts of the Magnuson-Stevens Act have not changed. They include the following:

- The biological conservation of a fishery resource has priority over its use.
- Conservation and management decisionmaking must be based on the best available scientific information, which should include social, economic, and ecological factors along with biological factors.
- The needs of fishery resource users vary across the nation, and public participation in the policy making process should be maximized.

The Magnuson-Stevens Act (as amended in 1996) included the following policy statement regarding the nation's fisheries (16 U.S.C. 1801, Sec. 2[c]):

POLICY—It is further declared to be the policy of the Congress in this Act:

- (1) to maintain without change the existing territorial or other ocean jurisdiction of the United States for all purposes other than the conservation and management of fishery resources, as provided for in this Act;
- (2) to authorize no impediment to, or interference with, recognized legitimate uses of the high seas, except as necessary for the conservation and management of fishery resources, as provided for in this Act;
- (3) to assure that the national fishery conservation and management program utilizes, and is based upon, the best scientific information available; involves, and is responsive to the needs of, interested and affected states and citizens; considers efficiency; draws upon federal, state, and academic capabilities in carrying out research, administration, management, and enforcement; considers the effects of fishing on immature fish and encourages development of practical measures that minimize bycatch and avoid unnecessary waste of fish; and is workable and effective;
- (4) to permit foreign fishing consistent with the provisions of this Act;
- (5) to support and encourage active United States efforts to obtain internationally acceptable agreements which provide for effective conservation and management of fishery resources, and to secure agreements to regulate fishing by vessels or persons beyond the exclusive economic zones of any nation;
- (6) to foster and maintain the diversity of fisheries in the United States; and
- (7) to ensure that the fishery resources adjacent to a Pacific Insular Area, including resident or migratory stocks within the exclusive economic zone adjacent to such areas, be explored, developed, conserved, and managed for the benefit of the people of such area and of the United States.

The Magnuson-Stevens Act also established ten National Standards that serve as the overarching objectives for fishery conservation and management (16 U.S.C. 1851, Sec. 301[a].):

(a) IN GENERAL—Any fishery management plan prepared, and any regulation promulgated to implement any such plan, pursuant to this title shall be consistent with the following national standards for fishery conservation and management:

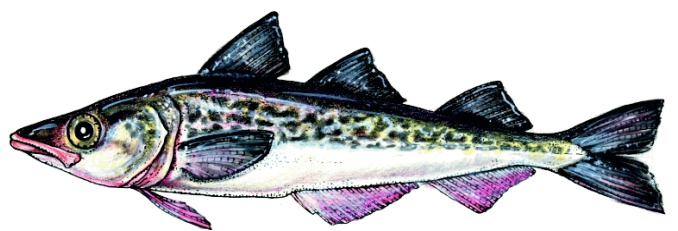
- (1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.
- (2) Conservation and management measures shall be based upon the best scientific information available.
- (3) To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and in related stocks of fish shall be managed as a unit or in close coordination.
- (4) Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be (a) fair and equitable to all such

fishermen; (b) reasonably calculated to promote conservation; and (c) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

- (5) Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.
- (6) Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.
- (7) Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.
- (8) Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (a) provide for the sustained participation of such communities, and (b) to the extent practicable, minimize adverse economic impacts on such communities.
- (9) Conservation and management measures shall, to the extent practicable, (a) minimize bycatch and (b) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.
- (10) Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The Magnuson-Stevens Act also mandates the Secretary of Commerce to develop advisory guidelines to assist in fishery management plan (FMP) development. These guidelines serve primarily to interpret and aid compliance with the national standards (codified at 50 CFR Part 600, and most recently revised on May 1, 1998 [63 FR 24212]).

In recent years, amendments to the Magnuson-Stevens Act have played a critical role in framing the regulatory regime within which the North Pacific groundfish fisheries operate. In particular, overfishing concerns, resource allocation among competing users, bycatch management, and conservation of essential fish habitat have become issues addressed by Magnuson-Stevens Act amendments.



*Pollock*

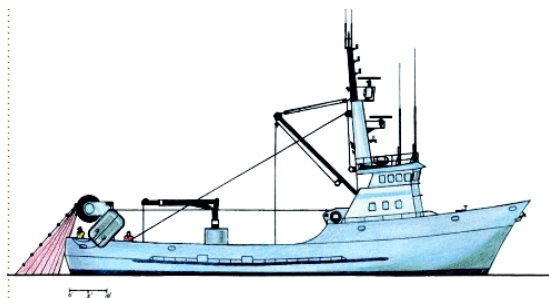
### **American Fisheries Act**

Next to the Magnuson-Stevens Act, the American Fisheries Act (AFA) is the only other fisheries-specific legislation affecting how groundfish fisheries in the Bering Sea and Aleutian Islands (BSAI) and, to a lesser extent, the Gulf of Alaska (GOA) are managed. The AFA, enacted in October 1998, represents the culmination of a decade-long struggle over the allocation of Alaska's most abundant fishery resource, walleye pollock in the BSAI. The AFA institutionalized a resource allocation scheme among competing onshore and offshore components of the fish processing industry.

Provisions mandated by the AFA to be in effect in 1999, were implemented through the total allowable catch (TAC) specification process and emergency interim rulemaking (final specifications notice, 64 FR 12103, March 11, 1999; extended emergency interim rules, 64 FR 34743, June 29, 1999; and 64 FR 33425, June 6, 1999). Permanent federal regulations to implement provisions of the AFA required that the Council amend FMPs. Hence, final AFA implementing rules likely will not be in effect until 2001. For the 2000 fishing year, AFA provisions were implemented by emergency interim rules published January 5, 2000 (65 FR 380) and January 28, 2000 (65 FR 4520), and extended on June 23, 2000 (65 FR 39107) through December 24, 2000, and January 16, 2001, respectively.

Major provisions of the AFA include the following:

- Requirement of a minimum of 75 percent U.S. ownership of fishing vessels, up from majority ownership, and maximum size and horsepower limits for replacement vessels;
- Specific allocation of the BSAI directed pollock fishery total allowable catch (TAC) among the inshore component (50 percent) catcher/processor vessels in the offshore component (40 percent), and motherships in the offshore component (10 percent) after first deducting 10 percent of the total TAC for the Community Development Quota (CDQ) Program and an incidental catch allowance;
- Buyout of nine catcher/processor vessels' future fishing privileges, financed through a combination of a grant and direct loan obligations, to be paid back by a tax of \$0.006 per pound of pollock harvested by the inshore sector;
- Specific naming of 20 catcher/processor vessels that may participate in the (offshore) pollock fishery, 7 catcher vessels that may deliver pollock to those catcher/processors, and 19 catcher vessels that may deliver pollock to motherships;
- Criteria for catcher vessels to participate in harvesting BSAI pollock in the inshore sector, and criteria for limiting the participation of onshore processing plants in the BSAI pollock fishery;



*Shore-based catcher vessel*

- Fishery cooperatives with limitations on the structure and participation among cooperatives involving catcher vessels and the inshore sector processing plants;
- Directions for the North Pacific Fishery Management Council (the Council) to develop or improve on limitations (sideboards) on the activities of AFA vessels and processors in non-pollock fisheries to prevent negative spillover effects of fishery cooperatives.

## National Environmental Policy Act

The National Environmental Policy Act (NEPA) is a cornerstone environmental mandate that declares a national policy to encourage productive and enjoyable harmony between man and the environment, and to promote efforts to better understand and prevent damage to ecological systems and natural resources important to the nation.



NEPA, signed into law in 1970 (42 U.S.C. 4321 *et seq.*), has two principal purposes:

1. Require federal agencies to evaluate the potential environmental effects of any major planned federal action is to ensure that public officials make well-informed decisions about the potential impacts.
2. Promote public awareness of potential impacts at the earliest planning stages of major federal actions. The Act requires federal agencies to prepare a detailed environmental evaluation for any major federal action significantly affecting the quality of the human environment.

As with the Magnuson-Stevens Act, NEPA requires an assessment of both the biological and social/economic consequences of fisheries management alternatives. In order to provide the public an opportunity to be involved and influence decisionmaking on federal actions. In short, NEPA ensures that environmental information is available to government officials and the public before decisions are made and actions are taken.

NEPA established the Council on Environmental Quality (CEQ) to review government policies and programs for conformity with the law. One of the CEQ's responsibilities is to advise and assist the President in preparing an annual environmental quality report, which is submitted to Congress. The CEQ is also responsible for oversight of regulations and procedures implementing NEPA, and has prepared guidance for federal agencies regarding NEPA regulations (40 CFR Part 1500). Identified processes for issue scoping, consideration of alternatives, evaluation procedures, public involvement and review, and coordination between agencies are applicable to the Council development of the groundfish FMPs.

The U.S. Department of Commerce, NOAA, has also prepared environmental review procedures for implementing NEPA (NOAA Administrative Order 216-6). This Order describes NOAA's policies, requirements, and procedures for complying with NEPA and the implementing regulations issued by the CEQ. The 1999 revision and update to the Administrative Order includes specific guidance regarding categorical exclusions, especially as they relate to endangered species, marine mammals, fisheries, and habitat restoration. The Order also expands on guidance for consideration of cumulative impacts and "tiering" in the environmental review of NOAA actions. This administrative order provides comprehensive and specific procedural guidance to NMFS and the Council for preparing and adopting groundfish FMPs.

Federal fishery management actions subject to NEPA requirements include the approval of FMPs, FMP amendments, and FMP implementing regulations. Such approval requires preparation of either (1) an environmental impact statement (EIS) or SEIS for major fishery management actions that significantly affect the quality of the human environment, and documents that finding for public consideration and comment before a decision is made, or (2) an environmental assessment (EA) for fishery management actions that will not significantly affect the human environment. If an EA does not result in a finding of no significant impact, then an EIS or SEIS must be prepared. In addition to NEPA implementing regulations (at 40 CFR 1500-1508), NEPA compliance by fisheries management actions is guided by NOAA Administrative Order 216-6.

NEPA and the Magnuson-Stevens Act requirements for schedule, format, and public participation are compatible and allow one process to fulfill both obligations. If an EIS or SEIS is prepared, however, the notice of availability of a final EIS (or SEIS) must be published at least 30 days before the Secretary of Commerce approves, disapproves, or partially approves an FMP or FMP amendment.

## **Endangered Species Act**

The Endangered Species Act (ESA) (16 U.S.C. 1531 *et seq.*), passed in 1973 and reauthorized in 1988, provides broad protection for fish and wildlife species that are listed as threatened or endangered. Provisions

are made for the formal listing of species, development of recovery plans, and designation of critical habitats. The ESA outlines procedures for federal agencies to follow when taking actions that may jeopardize species. Responsibilities for implementing the ESA are shared by the U.S. Fish and Wildlife Service (USFWS; freshwater fish, birds, terrestrial mammals, and plants) and NMFS (anadromous and marine fish, marine mammals, sea grasses). NMFS is therefore tasked with both managing the groundfish harvest through FMPs, and ensuring that identified threatened and endangered species (e.g., the Steller sea lion) receive appropriate consideration and protection during the planning and implementation of groundfish harvests. It should be noted that compliance with ESA provisions is not subject to modification based on economic hardship. Recovery plans required under the ESA give priority to those listed species that may be affected by different economic activities.

Section 7(a)(1) of the ESA requires federal agencies to conserve endangered and threatened species; however, conservation is broadly defined. Section 7(a)(2) of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by such agencies is not likely to jeopardize or result in the destruction or adverse modification of the critical habitat of endangered or threatened species.

Under an FMP, all fishing activities must be considered; not just the specific management measures under consideration. NMFS must conduct a formal Section 7 consultation that results in a biological opinion (BO) if a proposed action “may affect” or “is likely to adversely affect” endangered or threatened species or their critical habitat. If the BO concludes that the proposed action “is likely to jeopardize the continued existence of” threatened or endangered species, then reasonable and prudent measures are developed to minimize or mitigate the effect of the action. Once determined, the fishery management regulations must be revised to implement the reasonable and prudent measures.

### **Marine Mammal Protection Act**

The Marine Mammal Protection Act (MMPA) of 1972 (16 U.S.C. 1361 *et seq.*), as amended through 1996, establishes a federal responsibility to conserve marine mammals; management responsibility for cetaceans (whales) and pinnipeds (seals) other than walrus is vested with NMFS. The USFWS is responsible for all other marine mammals in Alaska including sea otter, walrus, and polar bear. Congress found that certain species and population stocks of marine mammals are or may be in danger of extinction or depletion due to human activities. Congress also declared that marine mammals are resources of great international significance, and they should be protected and encouraged to develop to the greatest extent feasible commensurate with sound resource management policies.

The MMPA’s primary management objective is to maintain the health and stability of the marine ecosystem, with a goal of obtaining an optimum sustainable population of marine mammals within the carrying capacity of the habitat. The MMPA is intended to work in concert with the provisions of the ESA. The Secretary of Commerce is required to give full consideration to all factors regarding regulations applicable to the “take” of marine mammals, including the conservation, development, and utilization of fishery resources, and the economic and technological feasibility of implementing the regulations. If a fishery affects a marine mammal population, then the potential impacts of the fishery must be analyzed in the appropriate EA or EIS, and the Council or NMFS may be requested to consider regulations to mitigate adverse impacts.

### **The Fish and Wildlife Coordination Act**

The Fish and Wildlife Coordination Act (FWCA) authorizes collection of fisheries data and coordination with other agencies for environmental decisions affecting living marine resources. Both formal and informal consultations, cooperative research, and data-gathering programs are routinely pursued.

## **The Federal Power Act**

The Federal Power Act (FPA) provides for concurrent responsibilities with the USFWS in protecting aquatic habitat. The original statute was enacted in 1920; however, only the 1935 and 1986 amendments added new requirements to incorporate fish and wildlife concerns in licensing, relicensing, and exemption procedures for power projects.

## **Coastal Zone Management Act**

Coastal Zone Management Act (CZMA) (16 U.S.C. 1451 *et seq.*) is designed to encourage and assist states in developing coastal management programs, to coordinate state activities, and to safeguard regional and national interests in the coastal zone. Section 307(c) of the CZMA requires that any federal activity affecting the land or water uses or natural resources of a state's coastal zone be consistent with the state's approved coastal management program, to the maximum extent practicable.

A proposed fishery management action that requires an FMP amendment or implementing regulations must be assessed to determine whether it directly affects the coastal zone of a state with an approved coastal zone management program. If so, NMFS must provide the state agency having CZM responsibility with a consistency determination for review at least 90 days before final NMFS action.

## **Administrative Procedure Act**

The Administrative Procedure Act (APA) (5 U.S.C. 553) requires federal agencies to give the public prior notice of rulemaking and an opportunity to comment on proposed rules. General notice of proposed rulemaking must be published in the *Federal Register*, unless persons subject to the rule have actual notice of the rule. Proposed rules published in the *Federal Register* must include reference to the legal authority under which the rule is proposed and explain the nature of the proposal including the action proposed and its intended effect, and any relevant regulatory history that provides a well-informed basis for understanding and commenting. The APA does not specify how much time the public must be given for prior notice and opportunity to comment; however, NOAA subscribes to 30 days as a reasonable period for public comments on proposed fishery management regulations. Exceptions to 30-day prior notice protocol include (1) proposed rules that would implement FMP amendments, in which case the Magnuson-Stevens Act indicates a 45-day period, and (2) emergency regulations, which often require immediate implementation.

Some regulations (e.g., emergency or interim) may be implemented immediately under the APA if the agency finds that prior notice and opportunity for public comment are impractical, unnecessary, or contrary to the public interest. The "good cause" reason for waiving normal public procedure must be fully explained in the *Federal Register* notice. The Magnuson-Stevens Act (at Section 305[c]) places further conditions and restrictions on the use of emergency or interim fishery regulations. For example, an emergency or interim fishery management measure may remain in effect for not more than 180 days and may be extended for an additional period, by notice in the *Federal Register*, only once.

On August 21, 1997 (62 FR 44421), NOAA published further policy guidelines in the form of criteria and justification standards for using emergency rule authority to address marine fishery management issues. These criteria define the phrase in Section 305(c) of the Magnuson-Stevens Act, "an emergency exists involving any fishery," as a situation that:

1. results from recent, unforeseen events or recently discovered circumstances; and

2. presents serious conservation or management problems in the fishery; and
3. can be addressed through emergency regulations for which the immediate benefits outweigh the value of advanced notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under normal rulemaking process (62 FR 44422).

The emergency rule guidelines also state that the normal public rule-making process may be waived in an emergency if the emergency action might be justified under one or more of the following situations:

1. Ecological—(a) to prevent overfishing as defined in an FMP, or as defined by the Secretary in the absence of an FMP, or (b) to prevent other serious damage to the fishery resource or habitat; or
2. Economic—to prevent significant direct economic loss or to preserve a significant economic opportunity that otherwise might be forgone; or
3. Social—to prevent significant community impacts or conflict between user groups; or
4. Public health—to prevent significant adverse effects to health of participants in a fishery or to the consumers of seafood products (62 FR 44422).

Except for the emergency or interim rule provisions, a proposed rule is designed to give interested or affected persons opportunity to submit written data, views, or arguments for or against the proposed action. After the end of a 30- or 45-day comment period, the APA requires comments received to be summarized and responded to in the final rule notice. Further, the APA requires the effective date of a final rule to be no less than 30 days after publication of the final notice in the *Federal Register*. This delayed effectiveness or “cooling off” period is intended to allow the affected public to become aware of and prepared to comply with the requirements of the rule. The 30-day delayed effectiveness period can be waived for a final rule only if it relieves a restriction, merely interprets an existing rule, or provides a statement of policy, or it must be made effective earlier than 30 days after publication for good cause. For fishery management regulations, the primary effect of the APA is to provide for public participation which, in combination with the Magnuson-Stevens Act, NEPA, and other statutes, limits the speed with which NMFS can implement nonemergency fishery regulations.

## **Regulatory Flexibility Act**

The Regulatory Flexibility Act (RFA) (5 U.S.C. 601 *et seq.*) requires federal agencies to assess the impacts of their proposed regulations on small entities and to seek ways to minimize economic effects on small entities that would be disproportionately or unnecessarily adverse. The most recent amendments to the RFA were enacted on March 29, 1996, with the Contract with America Advancement Act of 1996 (Public Law 104-121). Title II of that law, the Small Business Regulatory Enforcement Fairness Act (SBREFA), amended the RFA to require federal agencies to determine whether a proposed regulatory action would have a significant economic impact on a substantial number of small entities. For a federal agency, the most significant effect of SBREFA is that it made compliance with the RFA judicially reviewable.

The assessment requirement of the RFA is satisfied by a regulatory flexibility analysis, which applies only to regulatory actions for which prior notice and comment is required under the APA. Hence, emergency or interim rules that waive notice and comment are not required to have regulatory flexibility analyses. Further,

regulatory flexibility analyses are required only when an agency cannot certify that an action will not have a “significant economic impact” on a “substantial number of small entities.”

For purposes of these analyses, small entities include (1) small businesses which, for commercial fishing or fish processing, are firms with receipts of up to \$3 million annually or up to 500 employees, respectively, (2) small non-profit organizations, and (3) small governmental jurisdictions with a population of up to 50,000 persons. For Alaska fisheries, these criteria include most fishing firms except for the large catcher/process vessels and most coastal communities except for Anchorage. NMFS has published guidelines for RFA analysis; they include criteria for determining if the action would have a significant impact on a substantial number of small entities.

An initial regulatory flexibility analysis (IRFA) is prepared for any proposed regulatory action that meets the above criteria for having an anticipated “significant economic impact” on a “substantial number of small entities.” Due to the difficulty of certifying that an action will not have significant economic impact, an IRFA is prepared routinely for most proposed fishery management measures. The IRFA usually is combined with the EA or (supplemental) EIS document required by NEPA. However, if an action is determined to not have a “significant economic impact on a substantial number of small entities,” then a statement to this effect including a factual basis for the statement, must be published in the *Federal Register* and sent to the Small Business Administration.

If, following public comments on the proposed rule, the action is still considered to meet the criteria for requiring RFA analysis, then a final regulatory flexibility analysis (FRFA) must be prepared. The FRFA contains most of the same information presented in the IRFA, but also must include (1) a summary of significant issues raised in public comment on the IRFA and the agency’s response to those comments, and (2) a description of the steps the agency has taken to minimize the significant economic impacts on small entities, including a statement of factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why all other alternatives considered were rejected. Finally, the FRFA or a summary of it must be published in the *Federal Register* with the final rule.

In addition, SBREFA established two new requirements on agencies that publish rules. First, for each rule or group of related rules for which an agency is required to publish an FRFA, the agency is required to publish one or more guides to assist small entities in complying with the rule. These guides, called “small entity compliance guides,” must explain what a small entity is required to do to comply with the rule(s). The second new requirement directs each agency regulating the activities of small entities to establish a program for responding to inquiries from small entities concerning information on, advice about, and compliance with statutes and regulations, as well as interpreting and applying law to specific sets of facts supplied by small entities. Guidance given by an agency applying law to facts provided by a small entity may be considered as evidence of the reasonableness of any proposed fines, penalties, or damages sought against the small entity in any civil or administrative action.

## **Paperwork Reduction Act of 1995**

Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501 *et seq.*, and 5 CFR part 1320) is designed “to minimize the paperwork burden for individuals, small businesses, educational and nonprofit institutions, federal contractors, state, local and tribal governments, and other persons resulting from the collection of information by or for the Federal Government.” In brief, this law is intended to ensure that the government is not overly burdening the public with requests for information. This is accomplished through an information collection budget (ICB). The ICB for each agency is in terms of the total estimated time burden of responding to official inquiries. The President’s Office of Management and Budget (OMB) oversees each agency’s ICB. Agencies

must annually identify and obtain clearance from OMB for new or significant revisions to reporting and record keeping requirements.

Procedurally, the PRA requirements constrain what, how, and how frequently information will be collected from the public affected by a rule that requires reporting (e.g., harvested fish). New collections of information must be submitted to OMB for clearance before a final rule may take effect. For each rule that requires an information collection, the agency must describe in detail what data will be collected, how it will be collected and how often, from whom it will be collected, how much time will be spent by each affected person in complying with the information requirements, why the information is necessary, and how it will be used. OMB can take 60 days to review and clear a proposed information collection; hence, to avoid a PRA delay of a rule, NMFS tries to start the PRA review and clearance process at least 30 days before submission of a proposed rule for review in NMFS' central office. Information collections approved by OMB have a maximum effectiveness of three years. An extension beyond that time requires another submission for OMB clearance. Required collections of information from the public cannot be enforced without being included in an approved ICB.

### **Executive Order 12114: Environmental Effects Abroad**

This EO, issued in 1979, directs agencies to consider the effects of major federal actions upon the environment of foreign nations of the "global commons." These actions include those major federal actions that result in significant environmental effects that extend outside of the geographic borders of the United States. In some cases, an EIS may be required. The EO encourages international agreements and an exchange of information between the affected nations and the United States.

### **Executive Order 12630: Takings**

This EO on Government Actions and Interference with Constitutionally Protected Property Rights came into effect on March 18, 1988. This EO requires that each federal agency prepare a "takings implications assessment" for any of its administrative, regulatory, and legislative policies and actions that affect, or may affect, the use of any real or personal property. Fishery management measures, for example, that limit fishing seasons, areas, catch quotas, the size of harvested fish, and bag limits do not appear to have any takings implications, and thus, no takings implications assessment is required. However, a takings implication assessment may need to be prepared if a fishing gear type is prohibited, for example, in such a way that a fisherman leaving the fishery would be unable to sell his investment in the gear, or if a fisherman is prohibited by federal action from exercising property rights granted by a state.

Takings issues are raised frequently in the context of limited access systems, which confer a harvesting privilege on a fisherman in the form of a permit to catch a specific amount of fish or a license to enter and participate in a fishery. Although such permits and licenses may be transferrable, and therefore increase (or decrease) in market value, they do not convey any property rights in the fishery resource (i.e., the fish). If, for conservation purposes, the federal government were to drastically reduce the amount of fish that may be harvested from a fishery for which a fisherman had a limited license or permit, thereby reducing the transfer value of that license or permit, a question is raised whether such action would have "takings implications."

### **Executive Order 12866: Regulatory Planning and Review**

Executive Order (EO) 12866, signed by the President on September 30, 1993, and published October 4, 1993 (58 FR 51735), replaced EO 12291 and EO 12498. Its purpose, among other things, is to enhance planning and coordination with respect to new and existing regulations, and to make the regulatory process more

accessible and open to the public. In addition, EO 12866 requires agencies to take a deliberative, analytical approach to rule-making, including assessment of costs and benefits of the intended regulations. For fisheries management purposes, it requires NMFS (1) to prepare a regulatory impact review (RIR) for all regulatory actions, (2) to prepare a unified regulatory agenda twice a year to inform the public of the agency's expected regulatory actions, and (3) to conduct a periodic review of existing regulations.

The purpose of an RIR is to assess the potential economic impacts of a proposed regulatory action. As such, it can be used to satisfy NEPA requirements and as a basis for determining whether a proposed rule will have a significant impact on a substantial number of small entities which would trigger the completion of an IRFA under the RFA. For this reason, the RIR is frequently combined with an EA and an IRFA in a single EA/RIR/IRFA document that satisfies the analytical requirements of NEPA, RFA, and EO 12866 for any proposed rule. Criteria for determining "significance" for EO 12866 purposes, however, are different than those for determining significance for RFA purposes. A significant rule under EO 12866 is one that is likely to:

- Have an annual effect on the economy (of the nation) of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities;
- Create serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in EO 12866.

Although fisheries management actions rarely have an annual effect on the national economy of \$100 million or more or trigger any of the other criteria, OMB makes the ultimate determination of significance under this EO based in large measure on the analysis in the RIR. A recent example of a fishery management action determined to be "significant" under this EO is the regulatory action to implement provisions of the AFA in part because, at least initially, the AFA rulemaking raises novel legal or policy issues arising out of legal mandates. An action determined to be significant is subject to OMB review and clearance before its publication and implementation.

An initial determination of significance, frequently without benefit of an RIR, is made for each proposed regulatory action by NMFS through a "listing document." The listing document is a brief description of a proposed regulatory action, including a regulatory identifier number (RIN), and the expected schedule for rulemaking. Listing documents are prepared by NMFS and submitted through NOAA General Counsel and Department of Commerce Office of General Counsel to OMB. If OMB concurs in a determination of "not significant" under EO 12866, then OMB will not need to review the rule. In practice, NMFS attempts to submit a listing document at least three months before submission of the proposed rule.

The regulatory planning function of EO 12866 is served by the unified regulatory agenda, which is prepared twice a year to inform the public of the agency's expected regulatory actions and to provide brief descriptions and timelines. In addition, a regulatory plan is prepared annually to report on the most significant regulatory actions that the agency reasonably expects to issue in proposed or final form in that fiscal year or later.

## **Executive Order 12898: Environmental Justice**

EO 12898, issued in 1994, requires that federal agencies make achieving “environmental justice” part of their mission by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low income populations in the United States. While a significant native population exists in Alaska, few Alaska Natives are impacted by federal management of resources in the EEZ. However, a growing number of Alaska Natives participate in the fisheries as a result of the federal Community Development Quota Program; as a result, more economic benefits derived from federal groundfish fisheries are found in coastal native communities. The effects of the federal action on minority populations are described in Chapter 4.

## **Executive Order 13084: Consultation and Coordination with Indian Tribal Governments**

This EO was signed on May 14, 1998, and published May 19, 1998 (63 FR 27655). Its purpose is to establish regular and meaningful consultation and collaboration with Indian tribal governments in the development of federal regulatory practices that significantly or uniquely affect their communities; to reduce the imposition on unfunded mandates on Indian tribal governments; and to streamline the application process for and increase the availability of waivers to Indian tribal governments. This EO requires federal agencies to have an effective process to involve and consult with representatives of Indian tribal governments in developing regulatory policies, and it prohibits regulations that impose substantial direct compliance costs on Indian tribal communities. The groundfish fisheries off Alaska occur in the EEZ. Therefore, this EO becomes an issue in the normal Council regulatory process in Alaska because regulatory policies governing these fisheries rarely concern Indian tribal governments. However, in conjunction with the preparation of this programmatic SEIS, NMFS has initiated a government-to-government consultation process.

## **Executive Order 13132: Federalism**

The “Federalism” EO was signed by President Clinton on August 4, 1999, and published August 10, 1999 (64 FR 43255). This EO supercedes previous federalism EOs (12612 and 13083), but supplements EOs 12372, 12866, and 12988. This EO is intended to guide federal agencies in the formulation and implementation of “policies that have federalism implications,” such as regulations, legislative comments or proposed legislation, and other policy statements or actions that have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.

The EO establishes fundamental federalism principles based on the U.S. Constitution, specifies federalism policymaking criteria, and special requirements for preemption of state law. For example, a federal action that limits the policymaking discretion of a state is to be taken only where there is constitutional and statutory authority for the action and it is appropriate in light of the presence of a problem of national significance. Also, where a federal statute does not have expressed provisions for preemption of state law, such a preemption by federal rulemaking may be done only when the exercise of state authority directly conflicts with the exercise of federal authority. Conflict between state and federal law is possible on fishery management issues; however, the Magnuson-Stevens Act (Section 306) explicitly establishes conditions for federal preemption of state regulations (and extension of state fishery management authority into the EEZ). This EO also requires consultation between federal and state officials and requires a federalism impact statement for rules that have federalism implications. Federalism impact statements are rarely needed for federal Alaska groundfish regulations because of close state-federal consultation provided by the Council process (see Section 2.7.8).



## Executive Order 13158: Marine Protected Areas

This new EO, signed by President Clinton on May 26, 2000, and published on May 31, 2000 (65 FR 34909), directs the Departments of Commerce and the Interior to jointly develop a national system of marine protected areas (MPAs). The purpose of the system is to strengthen the management, protection, and conservation of existing protected areas and establish new or expanded MPAs. The MPA system is to be scientifically based, representing diverse U.S. marine ecosystems and the nation's natural and cultural resources. Establishing such a system is intended to reduce the likelihood that MPAs are harmed by federally approved or funded activities.

### 2.3.3 Future Management Tools and Measures

Management measures and management tools refer to all the rules, regulations, conditions, and methods which are required to rebuild, restore, or maintain any fishery resource and the marine environment. The terms “management measures” and “management tools” are often used interchangeably by fishery managers. *Management measures* are *tools* that the fishery manager uses to control the fishery. They typically are used to establish who can fish, what species can be fished, where a fishery can occur, what gear can be used, and what time of year fishermen are allowed to fish. Generically speaking, these are all tools in a manager's toolbox for controlling the fishery. A fishing season is a management measure, as is a quota or its allocation. For each management issue or problem, managers review the available tools to determine the best way to address the issue or solve the problem. An amendment to the FMP is made to implement the specific measure unless the tool is designed as a framework within which, by design, the Council and NMFS can put the tool to use without undergoing a lengthy plan amendment process.

In this programmatic SEIS, the term *tools* is used when management measures are discussed in a generic sense. Fishing seasons, total allowable catch (TACs), PSC limits, gear restrictions, and time and area closures, are all tools. In Chapter 4, agency analysts describe their review of existing management tools and, based on the particular set of policy objectives, rank the tools based on their perceived efficiency in achieving the objectives. These tools then serve as the primary elements of an alternative model regime where specific management measures are defined for analytical purposes (e.g., specific TAC levels are established, dates of seasons are specified, coordinates of model closed areas are provided).

## **2.4 The Programmatic Alternatives**

Analyzing environmental impacts of management policies requires knowing what actions could be taken to implement them. Policies are, by definition, high-level, overall statements or plans embracing the general goals and procedures of a government body. In the United States, policies are intended to reflect the values and wisdom of the citizens, as expressed by the nation's laws and agencies. Goals and objectives are often used to frame a policy and to make it clearer and easier to understand. Still, determining how a policy may affect human environment is difficult to analyze without some indication of how it might be implemented.

In this section the programmatic alternatives for this Supplemental Environmental Impact Statement (SEIS) are introduced, beginning with a presentation of the status quo regime. This management regime has evolved over the last 20 years and continues to be revised as new issues arise or new scientific information becomes available. This regime would continue to evolve if no action were taken. The programmatic alternatives in this SEIS therefore provide potential changes in direction for fisheries management.

During the scoping process, the National Marine Fisheries Service (NMFS) received numerous comments suggesting that various policy goals and objectives should be given greater emphasis by the North Pacific Fishery Management Council (the Council) than is currently the case. Based upon these comments, NMFS has selected several important policy goals and objectives to serve as the basic framework for programmatic alternatives to the status quo. These goals and objectives are derived from a number of sources, including the Magnuson-Stevens Fishery Conservation Management Act (Magnuson-Stevens Act), the Marine Mammal Protection Act (MMPA), the Endangered Species Act (ESA), the National Oceanic and Atmospheric Administration's (NOAA's) Fisheries Strategic Plan, NOAA's National Bycatch Plan, the Council's Comprehensive Fishery Management Goals, the Council's working definition for ecosystem-based management, and from the Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI) groundfish fishery management plans (FMPs) themselves.

NMFS believes that the programmatic alternatives must provide an appropriate range of alternatives so as to sharply define the issues and provide a clear basis for choice among the alternatives. Each programmatic alternative focuses on a particular set of objectives, which were selected to reflect public comment and define the issue. It is understood that the general effects that are determined from a particular alternative regime (Chapter 4) serve to illustrate many of the general effects of those prioritized policy objectives. Given the range of policy alternatives in this SEIS, one should expect that the consequences of emphasizing one set of objectives over others will illustrate the expected range of environmental effects that result from those decisions. Such effects could be offset, or reduced in terms of intensity, should the decisionmaker choose to combine sets of objectives or measures to create a modified policy emphasizing a different set of policy objectives than those presented in this analysis. Likewise, NMFS could choose to mitigate any significant effects without requiring a formal change in policy. In either case, NMFS expects that any effects during the next five years will fall within the broad range of effects described in this programmatic SEIS. This programmatic SEIS then serves as an overarching impact assessment of the Alaska groundfish fisheries on the natural and human environment.

### **2.4.1 Alternative 1 (No Action): Continue with Existing Management Policy**

The current management policy affecting the Alaska groundfish fisheries is defined by the policy statements, goals, and objectives contained in the BSAI and GOA Groundfish FMPs and other Council documents. It can also be defined by the recent actions taken by the Council and implemented by NMFS. A review of the evolution of Alaska groundfish management, a description of the Alaska groundfish fisheries, a summary of the management process, and other mandated considerations are provided in Sections 2.7 through 2.10.

#### **2.4.1.1 Fisheries Management Plan Policy Statements, Goals, and Objectives**

Both the GOA and BSAI Groundfish FMPs state the Council's goals and objectives for managing the fisheries. These goals and objectives and their accompanying statements are intended to clarify the basis for the Council's decisions and recommendations to the Secretary of Commerce. They are also intended to provide the public and the stakeholders of the resource a clear sense of direction for the fisheries. These goals and objectives were developed using the Council's public process. They have been found to be consistent with the Magnuson-Stevens Act with their subsequent approval by the Secretary.

In 1984, the Council undertook a review of its goals and objectives for all the fisheries being managed by NMFS in the Exclusive Economic Zone (EEZ) off Alaska. The fisheries were rapidly being "Americanized" (see Section 2.7.2), and the Council wanted to step back and assess progress made in the development of the domestic fisheries. As a result of this self-assessment, the Council developed nine Comprehensive Fishery Management Goals to serve as targets for future Council action. They were intended to provide the Council, the industry, and the public with a sense of direction for the course of fishery management for the next ten-year period (Appendix G).

#### **The Gulf of Alaska Groundfish Fishery Management Plan**

The GOA Groundfish FMP was the first FMP adopted by the Council. Following implementation of the Magnuson-Stevens Act in 1977 (Section 2.7.2), preliminary management plans (PMP) were prepared for the GOA and BSAI to establish a management regime to control the foreign fisheries. To control domestic harvest of groundfish required an FMP. The Council chose to prepare an FMP for the GOA first because at the time it was the only area with an existing small domestic groundfish fishery. As a result, the GOA FMP was a simple document and limited in scope, compared to the regime in place today. In 1985, a general omnibus amendment (Appendix B; Amendment 14) overhauled the GOA FMP by addressing a number of administrative weaknesses. It also updated the plan's policy statement to better reflect the thinking at that time. The policy statement that has been used since 1985 is summarized below.

The Council is committed to developing long-range plans for managing the GOA groundfish fisheries that will promote a stable planning environment for the seafood industry and will maintain the health of the resource and the environment. In developing allocations and harvesting systems, the Council will give overriding considerations to maximizing economic benefits to the United States. Such management will:

1. Conform to the National Standards and to the Council's Comprehensive Fishery Management Goals.
2. Be designed to ensure that, to the extent possible:
  - a. Commercial, recreational, and subsistence benefits may be obtained on a continuing basis;
  - b. Chances of irreversible or long-term adverse effects on fishery resources and the marine environment will be minimized;
  - c. Multiplicity of options will be available with respect to future uses of the resources; and
  - d. Regulations will be long-term and stable with changes kept to a minimum.

#### **Principal Management Goal**

GOA groundfish resources will be managed to maximize positive economic benefits to the United States, consistent with resource stewardship responsibilities for the continuing welfare of the GOA living marine

resources. Economic benefits include, but are not limited to, profits, benefits to consumers, income, and employment.

To accomplish this goal, a number of objectives will be considered:

1. The Council will establish annual harvest guidelines, within biological constraints, for each groundfish fishery, and mix of species taken in that fishery.
2. In its management process, including the setting of annual harvest guidelines, the Council will account for all fishery-related removals by all gear types for each groundfish species, sport fishery, and subsistence catches, as well as by directed fisheries.
3. The Council will manage the fisheries to minimize waste by:
  - a. Developing approaches to treating bycatches other than as a prohibited species. Any system adopted must address the problems of covert targeting and enforcement.
  - b. Developing management measures that encourage the use of gear and fishing techniques that minimize discards.
4. The Council will manage GOA groundfish resources to stimulate development of fully domestic operations.
5. The Council will develop measures to control effort in a fishery, including systems to convert the common property resource to private property, but only when requested to do so by the industry.
6. Rebuilding stocks to commercial or historic levels will be undertaken only if benefits to the United States can be predicted after evaluating the associated costs and benefits and the impacts on related fisheries.
7. Population thresholds will be established for economically viable species complexes under Council management on the basis of the best scientific information, and acceptable biological catches (ABCs) will be established as defined in this document. If population estimates drop below these thresholds, ABC will be set to reflect necessary rebuilding as determined in Objective 6.

### **The Bering Sea Aleutian Islands Groundfish Fishery Management Plan**

The BSAI groundfish FMP, implemented in 1981, set new standards for fisheries management. It was the first FMP in the country to introduce a framework approach to decision-making. In this plan, management tools were authorized whereby subsequent application did not require a lengthy plan amendment process. Use of regulatory amendments to implement the actual management measures proved to be more efficient. The FMP was also the first to be based on ecosystem principles. Such principles were reflected in the policy goals and objectives. The policy statement, which has not been changed since 1981, is summarized below.

The Council has determined that all its fishery management plans should, in order to meet the requirements of its constituency, the resources, and the Magnuson-Stevens Act, achieve the following goals:

1. Promote conservation while providing for the optimum yield from the region's groundfish resource in terms of
  - a. providing the greatest overall benefit to the nation with particular reference to food production and recreational opportunities;

- b. avoiding irreversible or long-term adverse effects on fishery resources and the marine environment; and
  - c. ensuring availability of a multiplicity of options with respect to the future uses of these resources.
- 2. Promote, where possible, efficient use of the fishery resources, but not solely for economic purposes.
- 3. Promote fair and equitable allocation of identified available resources in a manner such that no particular group acquires an excessive share of the privileges.
- 4. Base the plan on the best scientific information available.

In accomplishing these broad objectives, a number of secondary objectives have been considered:

- 1. Conservation and management measures have taken into account the unpredictable characteristics of future resource availability and socioeconomic factors influencing the viability of the industry.
- 2. Where possible, individual stocks of fish are managed as a unit throughout their range, but such management is in due consideration of other impacted resources.
- 3. In such instances when stocks have declined to a level below that capable of producing Maximum Sustainable Yield (MSY), management measures should promote the rebuilding of stocks. In considering the rate of rebuilding, factors other than biological considerations have been taken into account.
- 4. Management measures, while promoting efficiency where practicable, are designed to avoid disruption of existing social and economic structures where fisheries appear to be operating in reasonable conformance with the Act and have evolved over a period of years as reflected in community characteristics, processing capability, fleet size, and distribution. These systems and the resources upon which they are based are not static, but change in the existing regulatory regime should be the result of considered action based on data and input.
- 5. Management measures should contain a margin of safety in recommending allowable biological catches when the quality of information concerning the resource and ecosystem is questionable. Management plans should provide for accessing biological and socioeconomic data in such instances where the information base is inadequate to effectively establish the biological parameters of the resource or to reasonably establish optimum yield. This plan has identified information and research required for further plan development.
- 6. Fishing strategy has been designed in such a manner as to have a minimal impact on other fisheries and the environment.

Subtle differences exist between the GOA and BSAI FMPs in terms of policy. Prepared by different authors, some of the differences in wording can be attributed to differences in writing style. Partially conflicting policy goals and objectives listed in both FMPs requires that the Council balance conflicting goals (e.g., stimulating the development of domestic fisheries versus rebuilding depressed stocks). Both policy statements reference the Magnuson-Stevens Act National Standards as the overarching principles for managing the groundfish fisheries. The GOA FMP policy places primary emphasis on maximizing positive economic benefits to the United States, consistent with resource stewardship responsibilities for the continuing welfare of the GOA's living marine resources. The BSAI FMP's policy is more neutral. The BSAI policy recognizes the dynamics

of the Bering Sea ecosystem and that the management regime should be flexible in order to accommodate new information as more is learned about the ecosystem. Among other secondary objectives, the BSAI FMP highlighted the importance of designing fishing strategies that have minimal impact on the environment as well as taking a precautionary approach when data on the stock or the ecosystem is lacking. The differences in wording of the BSAI policy goals and objectives reflect a broader ecosystem view of the fisheries. It is unlikely that the Council recognized the differences between these two policy statements. The Council has always managed the GOA and the BSAI groundfish fisheries as a whole, recognizing the close inter-relationships that exist between the fisheries and the two geographical areas.

It is important to recognize that at the time these policy statements were prepared, the Alaska groundfish fisheries were going through a remarkable transition, from a foreign-dominated fishery to a purely domestic fishery. Goals and objectives developed during this period reflect the issues and needs of the time and may not necessarily represent today's perspective and understanding of the fisheries and the ecosystem (Sections 2.7.1 and 2.7.2 contain descriptions of the fisheries prior to and after implementation of the Magnuson-Stevens Act).

#### **2.4.1.2 Recent Federal Actions**

Another way to characterize the current policy of the Council and NMFS, as it pertains to the Alaska groundfish fisheries, is to review recent actions taken by the Council.

Section 2.7.2 presents a summary of the evolution of the FMPs and the significant issues and management actions that have shaped the regime in place today. A review of the FMP plan amendment and regulatory amendment summaries provided as Appendices A, B, and C provide considerable detail of the management history that transpired during the 1980s and 1990s. A review of the major actions taken in the 1990s illustrates the Council's recent policy emphasis and direction.

#### **Significant Gulf of Alaska Actions**

Over the last ten years, significant federal actions taken by the Council (grouped by general issue or primary purpose) are as follows:

##### Reduce Bycatch and Discards

Amendment 15: Kodiak Trawl Closure—established bottom trawl closure areas based on historic king crab abundance to enhance protection of king crab stocks.

Amendment 18: Kodiak Crab Closure—continued bottom trawl closures established by Amendment 15.

Amendment 26: Permanent Kodiak Crab Protection Zones—permanently extended bottom trawl closures established by Amendments 15 and 18.

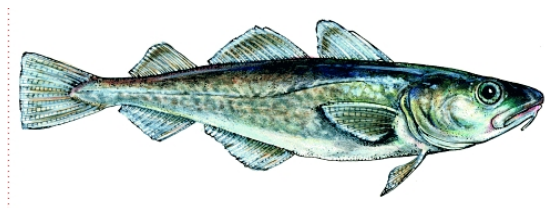


*King crab*

Amendment 37: Processing of non-individual fishing quota (IFQ) Species—increased efficiency by freezer-longline vessels and increased product quality of non-IFQ groundfish caught incidentally to the harvests of IFQ sablefish and halibut.

Amendment 49: Improved Retention/Improved Utilization—applied to all groundfish fisheries to reduce discards. Beginning first with pollock and Pacific cod in 1998, all vessels catching these species had to retain them. The program will be extended to shallow water flatfish fisheries beginning in 2003.

Amendment 53: Full Retention of Demersal Shelf Rockfish in Fixed Gear Fisheries—approved by the Council but awaiting Secretarial approval. It is intended to eliminate discards of these species.



*Pacific cod*

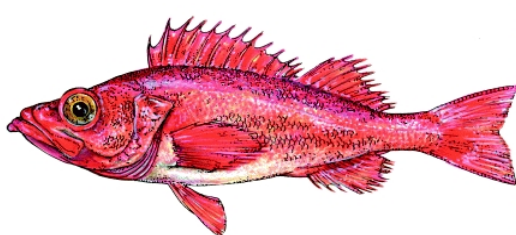
#### Protect Target Groundfish Species

Amendment 32: Pacific ocean perch Rebuilding Plan—established a rebuilding program for Pacific ocean perch stocks in the GOA.

Amendment 38: Pacific ocean perch Rebuilding Plan—allowed the total allowable catch (TAC) to be set at or below the amount dictated by the Amendment 32 formula based on biological or resource conservation concerns.

Amendment 44: Overfishing Definitions—redefined ABC and overfishing to facilitate more conservative risk-adverse decisions when stock size and mortality rates are not fully known.

Amendment 56: Revised Overfishing Definitions—revised Tiers 2–4 established in Amendment 44 by changing the default fishing mortality rate to a more conservative rate.



*Pacific ocean perch*

#### Protect Non-Target Species

Amendment 39: Forage Fish Protection—prohibited the development of commercial fisheries for forage fish in recognition of their importance to the marine food web and the ecosystem.

#### Increase the Economic Benefits to the Nation

Amendment 20: Sablefish and Halibut IFQs—established an IFQ program for these fisheries. Benefits included regulatory stability, increased product quality, and increased vessel safety.

Amendment 23: Inshore/Offshore Allocations—established inshore/offshore processing allocations to avoid a return to the “free-for-all” that existed previously. The intent was to stabilize the fisheries until a comprehensive control program could be developed.

Amendment 28: Moratorium—established a vessel moratorium on new entry into the groundfish fisheries until the License Limitation Program could be put into effect.

Amendment 29: Salmon Retention for Food Banks—established a mechanism for retaining and distributing salmon taken as bycatch by the trawl fisheries (that otherwise would have been discarded by regulation) to the needy.

Amendment 35: Quota Share Blocks—modified the sablefish and halibut IFQ Program to protect small producers, part-time participants, and entry-level participants by preventing excessive consolidation of quota shares.

Amendment 36: Transfer of Community Development Quota Compensation Quota Shares—benefits focused on making more accessible areas available to small boat fishermen.

Amendment 37: Processing of Non-IFQ Species—permitted non-IFQ species caught incidentally to sablefish, to be kept and frozen, thereby increasing product quality and reducing discards.

Amendment 40: Inshore/Offshore Allocations—extended the processing allocations established in Amendment 23 to avoid a return to a free-for-all. Such actions were intended to stabilize the fisheries until a comprehensive effort control program could be developed.

Amendment 41: License Limitation Program—considered the first step toward preventing comprehensive rationalization of the fisheries, this action prevented additional vessels from entering the groundfish fisheries and adding to the tragedy of the commons.

Amendment 42: IFQ Vessel Buy Down—increased the flexibility of quota share use and transfer by small vessels.

Amendment 43: IFQ Sweep Up Provisions—increased the consolidation of small quota shares to provide for greater use of quota shares.

Amendment 50: Halibut Donation Program—established a mechanism for retaining and distributing to the needy halibut taken as bycatch in the trawl fisheries (which by regulation would otherwise have been discarded).

Amendment 51: Inshore/Offshore Allocations—continued the processing allocations established in Amendments 23 and 40, as modified by implementation of the AFA in 1999.

Amendment 54: Indirect Ownership and Use Caps (IFQ)—would clarify rules of ownership in the Sablefish IFQ Program (currently in the pipeline; not yet implemented).

Amendment 57: Moratorium Extensions—extended the moratorium established by Amendment 28 on new entry into the groundfish fisheries until the License Limitation Program (LLP) could be put into effect.

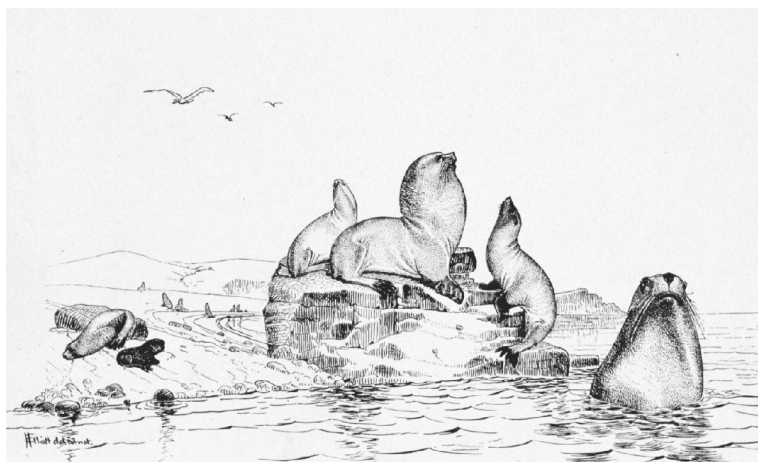
Amendment 58: LLP—approved by the Council but not yet been approved by the Secretary of Commerce. Many years in the making, this program permanently restricts new entry into the groundfish fisheries.

Amendment 61: American Fisheries Act (AFA) Implementation—currently in the pipeline; approved by the Council, and temporarily implemented by NMFS emergency order. The amendment implements nondiscretionary elements of the AFA, which include sector allocations for pollock to eligible harvesting vessels, processors, and cooperatives.



## Protect Threatened or Endangered Species

Amendment 25: Steller Sea Lion Buffer Zones—established year-round closure areas within 10 nautical miles of key Steller sea lion rookeries. Also established time and area restrictions on pollock harvest adjacent to selected rookeries. The Council has also used regulatory amendments to take further protective actions. In the last five years, the most important perhaps, was the implementation of reasonable and prudent actions (RPAs) for Steller sea lions authorized under Amendment 25. These RPAs, for example, made modifications to measures approved previously by returning the fishery to a quarterly distribution of pollock harvest. Such



*Steller sea lions*

an action is intended to spread out the catch and reduce the possibility that the fisheries compete with the marine mammals for food. Other actions require longline vessels to utilize avoidance measures to reduce the chance of taking short-tailed albatross in their gear.

## Protect Habitat

Amendment 55: Essential Fish Habitat—defined essential fish habitat for all managed groundfish species and identified Habitat Areas of Particular Concern.

Amendment 59: Sitka Pinnacles Marine Reserve—would establish a no-fishing marine reserve containing important fish habitat near Sitka, Alaska. Approved by the Council, it is awaiting Secretarial review and action.

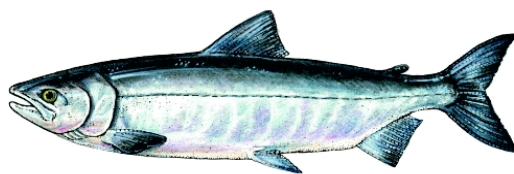
Amendment 65: Habitat Areas of Particular Concern (HAPCs)—precludes commercial fisheries on corals and sponges from developing. Awaiting Secretarial review and action.

## **Significant BSAI Actions**

During the 1990s, the following significant federal actions were taken by the Council (grouped by general issue or primary purpose):

### Reduce Bycatch and Discards

Amendment 21a: Pribilof Islands Habitat Conservation Area—established trawl closures near the islands to reduce the incidental catch of crab.



*Chum salmon*

Amendment 21b: Chinook Salmon Savings Area—established a time and area management strategy aimed at reducing the amount of chinook salmon taken as bycatch in trawl fisheries.

Amendment 33: Processing of non-IFQ Species—increased efficiency by freezer-longline vessels and increased product quality of non-IFQ groundfish caught incidentally to the harvests of IFQ sablefish and halibut. Reduced discards.

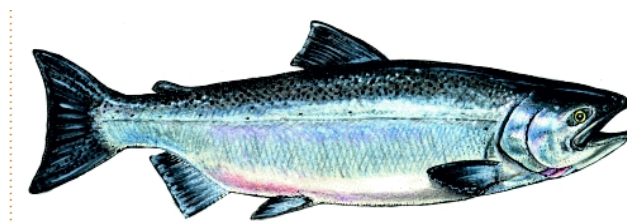
Amendment 35: Chum Salmon Savings Area—established a temporal and spatial management measure aimed at reducing the amount of chum salmon taken as bycatch in the trawl fisheries.

Amendment 37: Red King Crab Protection Measures—established year-round closure areas and modified the prohibited species catch (PSC) limit for trawl fisheries as steps toward rebuilding king crab stocks in the Bering Sea.

Amendment 40: Opilio Bycatch Limits—established for the first time, PSC limits for snow crab as a measure to limit incidental mortality in the groundfish trawl fisheries.

Amendment 41: Reduced Bairdi Limits—reduced PSC limits for Tanner crab and established a temporal and spatial measure that closed areas once a PSC limit was reached.

Amendment 49: Improved Retention/Improved Utilization—applied to all groundfish fisheries to reduce discards. Beginning first with pollock and Pacific cod in 1998, all vessels catching these species had to retain them. The program will be extended to rock sole and yellowfin sole fisheries beginning in 2003.



*Chinook salmon*

Amendment 57: Pollock Bottom Trawl Gear Prohibition—prohibited the use of bottom trawls (beginning in 1999) in the pollock fishery to reduce the impact of trawl gear on the bottom and reduce the bycatch of crab and halibut.

Amendment 58: Reduced Chinook Salmon Bycatch Limits—further reduced salmon bycatch in the BSAI trawl fisheries.

### Increase Economic Benefits to Alaska Coastal Communities

Amendment 18: Inshore/Offshore Allocations—established the Community Development Quota Program for western Alaska communities.

Amendment 32: Transfer of Community Development Quota (CDQ) Compensation Quota Shares—increased fishing opportunities to coastal communities.

Amendment 34: Atka Mackerel Jig Allocation—intended to increase fishing opportunities for local, small boat fishermen.

Amendment 38: Inshore/Offshore Allocations—reauthorized the CDQ Program established by Amendment 18 by extending previously set processing allocations to avoid a return to a free-for-all fishery. Such actions were intended to stabilize the fisheries until a comprehensive effort control program could be developed.

Amendment 45: Reauthorize CDQ Fisheries—continued the CDQ Program, which brought significant economic opportunities to western Alaska coastal communities.

### Protect Target Groundfish Species

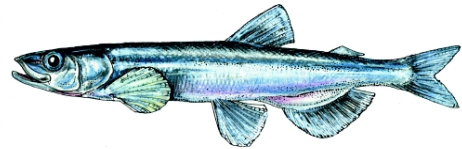
Amendment 44: Overfishing Definitions—redefined acceptable biological catch (ABC) and overfishing to facilitate more conservative risk-adverse decisions when stock size and mortality rates are not fully known.

Amendment 53: Shortraker/Rougheye Rockfish Allocation—reduced the chance of overfishing these species.

Amendment 56: Revised Overfishing Definitions—revised Tiers 2–4 by changing the default fishing mortality rate to a more conservative rate.

### Protect Non-Target Species

Amendment 36: Forage Fish Protection—prohibited the development of commercial fisheries for forage fish, such as capelin, in recognition of their importance to the marine food web and the ecosystem.



*Capelin*

Amendment 37: Red King Crab Protection Measures—established year-round closure areas and modified the PSC limit for trawl fisheries as steps toward rebuilding king crab stocks in the Bering Sea.

### Increase the Economic Benefits to the Nation

Amendment 15: Sablefish and Halibut IFQ—established a regulatory program to stabilize the longline fisheries for sablefish and halibut, improve product quality, and increase vessel safety.

Amendment 23: Moratorium—established a vessel moratorium on new entry into the groundfish fisheries until the LLP could be put into effect.

Amendment 24: Pacific Cod Allocation—established allocations of Pacific cod TAC between the trawl, fixed gear, and jig gear fisheries. This amendment was intended to stabilize the fishery.

Amendment 26: Salmon Retention for Food Banks—established a mechanism for retaining and distributing to the needy, incidentally caught salmon that, by regulation, would otherwise have to be discarded.



*Sablefish*

Amendment 31: Quota Share Blocks—prevented excessive consolidation of quota shares to ensure a diverse participation in the IFQ fisheries.

Amendment 33: Processing of Non-IFQ Species—increased efficiency by freezer-longline vessels and increased product quality of non-IFQ groundfish caught incidentally to the harvests of IFQ sablefish and halibut. Reduced discards.

Amendment 38: Inshore/Offshore Allocations—reauthorized the CDQ Program established by Amendment 18 by extending the processing allocations set previously to avoid a return to a free-for-all fishery. Such actions were intended to stabilize the fisheries until a comprehensive effort control program could be developed.

Amendment 39: LLP—considered the first step toward comprehensive rationalization of the fisheries, this action prevented additional fishing vessels from entering the groundfish fisheries and adding to the tragedy of the commons.

Amendment 42: IFQ Vessel Buy Down—increased the flexibility of quota share use and transfer by small vessels.

Amendment 43: IFQ Sweep Up Provisions—increased the consolidation of small quota shares to provide for greater use of quota shares.

Amendment 46: Pacific Cod Allocation—extended the TAC allocations established by Amendment 24 to the trawl, hook-and-line and pot gear, and jig fisheries.

Amendment 50: Halibut Donation Program—established a mechanism for retaining and distributing to the needy halibut taken as bycatch in the trawl fisheries (which by regulation would otherwise have to be discarded).



*Pacific halibut*

Amendment 51: Inshore/Offshore Allocations—continued the processing allocations established by Amendment 18, as modified by implementation of the AFA in 1999.

Amendment 54: Indirect Ownership and Use Caps (IFQ)—would clarify rules of ownership in the sablefish IFQ program (not yet implemented).

Amendment 59: Moratorium Extensions—extended the moratorium established by Amendment 23 on new entry into the groundfish fisheries until the LLP could be put into effect.

Amendment 60: LLP—approved by the Council but, not yet approved by the Secretary of Commerce. Many years in the making, this program permanently restricts new entry into the groundfish fisheries.

Amendment 61: AFA Implementation—approved by the Council, and temporarily implemented by emergency order. The amendment implements the nondiscretionary elements of the AFA that include sector allocations for pollock, to eligible harvesting vessels, processors, and cooperatives.

Amendment 64: Pacific Cod Fixed Gear Allocations—provides further refinement to the Pacific cod allocations to hook-and-line and pot fisheries.

Amendment 67: Pacific Cod Species and Gear Endorsements—establishes new rules to prevent transfer of LLP vessels into the Pacific cod fishery that had no, or limited, history in that fishery. This amendment has been approved by the Council, and is awaiting Secretarial approval.

### Protect Threatened or Endangered Species

Amendment 25: Steller Sea Lion Buffer Zones—established year-round closure areas within 10 nautical miles of key Steller sea lion rookeries. Also established time and area restrictions on pollock harvest adjacent to selected rookeries. The Council has also used regulatory amendments to take further protective actions. In the last five years, the most important perhaps, was the implementation of reasonable and prudent actions (RPAs) for Steller sea lions authorized under Amendment 25. These RPAs, for example, made modifications to measures approved previously by returning the fishery to a quarterly distribution of pollock harvest. Such an action is intended to spread out the catch and reduce the possibility that the fisheries were competing with the marine mammals for food. Other actions include the requirement that longline vessels utilize avoidance measures to reduce the chance of taking short-tailed albatross in their gear.

### Protect Habitat

Amendment 21a: Pribilof Islands Habitat Conservation Area—established trawl closures near the islands to reduce the incidental catch of crab and protect benthic habitat.

Amendment 55: Essential Fish Habitat—defined essential fish habitat for all managed groundfish species and identified Habitat Areas of Particular Concern.

Amendment 65: Habitat Areas of Particular Concern—would preclude commercial fisheries on coral and sponges (not yet approved).

### **Summary of Current Policy**

Review of recent Council actions illustrates a history of decision-making by the Council in which it has attempted to balance a number of policy objectives. Review of this history suggests that the policy emphasis of federal managers has changed from one dominated by economic development objectives (during the 1980s) to a policy that emphasizes a reduction in groundfish discards and comprehensive rationalization of the fisheries. These changes in policy emphasis demonstrate the benefits of a policy framework. The main concern of U.S. managers in the 1970s and 1980s was to control the target catch of foreign fleets, which by then had fished down many stocks, and to shield domestic fisheries for crab and halibut from foreign bycatch, gear conflicts, and grounds preemption. Many of these control measures were brought forward into the PMPs for foreign fisheries, and then into the initial FMPs in 1978–1982. By 1985, the basis for target species protection had been established, but managers still spent considerable time and effort fashioning measures to limit the impacts of the burgeoning domestic groundfish fishery on more traditional fisheries for salmon, halibut, and crab. This review of policy emphasis on protecting target species should not be interpreted as a lack of attention. Rather, the basic management approaches were now in place, and they did not require any major changes over time, except for fine tuning. The processes for establishing ABCs, TACs, overfishing levels (OFLs), and other such levels were changed to provide additional protection.

In the 1980s, various closures to foreign fisheries and joint ventures conferred economic benefits on other domestic fisheries, but the real catalyst for economic growth was the allocation priorities established in the Magnuson-Stevens Act. As is described in greater detail in Section 2.7.2, giving priority to domestic fisheries brought about the “Americanization” of groundfish fisheries much earlier than anyone had anticipated. The domestic-foreign joint venture, which peaked in 1987, served as the proving grounds for many restrictions that would eventually be placed on the fully domestic fisheries. For example, the yellowfin sole fleet in the eastern Bering Sea demonstrated to managers how limited they were in implementing very precise measures to

control—or even monitor—individual vessel bycatch without comprehensive observer coverage on the vessels.

The 1990s may be viewed as a period of continual modification of measures to manage groundfish operations to minimize their impact on non-groundfish fisheries, on marine mammals and seabirds, and on habitat. Direct catalysts for the latter measures came first from the ESA, then from the Sustainable Fisheries Act of 1996. The 1990s also may be viewed as the time when managers struggled with the problems of intense competition for a robust, but limited, groundfish resource. Managers made allocations of cod and pollock to various gear sectors to insulate one from the other. Capacity control measures, such as individual fishing quotas and license limitation, were also introduced. The AFA provided further rationalization of the pollock fishery by reducing the number of factory trawlers and introducing fishing cooperatives.

Partially conflicting policy goals and objectives in the BSAI and GOA FMPs, require the decision-maker to strike an appropriate balance. The FMPs themselves, and their implementing regulations describe a “management regime.” The current regime is described in Section 2.7 as the “Federal Action of this Programmatic SEIS.” It is therefore logical that a practical way to evaluate alternative policy objectives is to construct model management regimes that can be compared to the current regime. In this way, the model regimes serve as an example of how a particular policy may be implemented and analysis of those model regimes will provide information to allow, to some degree (Chapter 4), for a comparative analysis among alternative policies.

#### **2.4.2 A New Policy Framework: The Common Denominator Among Alternatives to the Status Quo**

To fulfill the purpose and need of this programmatic SEIS, NMFS has selected particular policy objectives as “primary objectives” as a method of defining the “policy emphasis” for each programmatic alternative. These goals and objectives were derived from a review of the Magnuson-Stevens Act, the NOAA Fisheries Strategic Plan, NOAA’s National Bycatch Plan, the ESA, the MMPA, the Council’s Comprehensive Fishery Management Goals, and the Council’s working definition for ecosystem-based management. By constructing each alternative around a different policy emphasis, the environmental issues raised during scoping can be clearly defined and examined. Such a presentation of alternatives also illustrates the flexibility of the policy framework to address particular environmental issues. The policy emphasis contained within each alternative will present a marked contrast to the Council’s stated management policy and to the other alternatives, whereas the Council currently strives to seek a balance of objectives. If adopted, the new or changed policy emphasis could restrict the range of future management actions. Combining two or more suites of alternative policy objectives could similarly result in changes (though possibly less distinct from the status quo) on how the fisheries are managed and regulated compared to the status quo.

#### **2.4.3 Alternative 2: Adopt a New Fisheries Management Policy Framework that Emphasizes Increased Protection to Marine Mammals and Seabirds**

This policy would emphasize reducing conflicts and adverse interactions between groundfish fishing activities and marine mammals and seabirds, while providing a future in which the American people are able to enjoy the wealth and benefits of diverse and self-sustaining living marine resources. The following four overarching goals will serve the Council and NMFS as long-term achievements:

1. Provide sound conservation of living marine resources.
2. Provide socially and economically viable fisheries.
3. Allow no human-caused threats to protected species.
4. Maintain a healthy living marine resource habitat.

In accomplishing these broad goals, the following fourteen policy objectives will be considered when making decisions. Those objectives being used to illustrate greater emphasis (e.g., to increase protection to Steller sea lions, other marine mammals, short-tailed albatross, and seabirds) in shaping policy decisions under Alternative 2 are in bold:

1. **Emphasize protection of marine mammals and seabirds by reducing potential adverse impacts of groundfish harvesting; adverse impacts may include direct take, competition for prey, disturbance, and degradation of habitat (primary objective).**
2. Maintain healthy stocks important to commercial, recreational, and subsistence fisheries.
3. Prevent overfishing and rebuild depressed stocks important to commercial, recreational, and subsistence fisheries. Increase long-term economic and social benefits to the nation from living marine resources.
4. **Recover and maintain protected species populations.**
5. **Reduce fishing conflicts that involve protected species and seabirds.**
6. Protect, conserve, and restore living marine resource habitat.
7. **Conform to the National Standards and the Council's Comprehensive Goals.**
8. Fully integrate MMPA, ESA, Fish and Wildlife Coordination Act (FWCA), and Federal Power Act (FPA) procedures into the Magnuson-Stevens Act decision-making process.
9. Promote a stable planning environment for the seafood industry by keeping regulations stable when possible.
10. Promote efficient use of the resources, but not solely for economic purposes.
11. Minimize discards by developing management measures that encourage the use of gear and fishing techniques that minimize discards.
12. Establish minimum stock size thresholds for all managed groundfish stocks based on the best scientific information available.
13. Maintain a margin of safety in recommending acceptable biological catches when the information concerning the resource is questionable and obtain additional biological and socioeconomic data in such instances.
14. Use the precautionary approach when making decisions.

#### **2.4.4 Alternative 3: Adopt a New Fisheries Management Policy Framework that Emphasizes Increased Protection to Target Groundfish Species**

Alternative 3 places greater emphasis on objectives aimed at preventing overfishing, maintaining healthy fish stocks of target species, and rebuilding depressed stocks of target species while providing a future in which the

American people are able to enjoy the wealth and benefits of diverse and self-sustaining living marine resources. The following four overarching goals will serve the Council and NMFS as long-term achievements:

1. Provide sound conservation of living marine resources.
2. Provide socially and economically viable fisheries.
3. Allow no human-caused threats to protected species.
4. Maintain a healthy living marine resource habitat.

In accomplishing these broad goals, 14 policy objectives will be considered when making decisions. Those objectives being used to illustrate greater emphasis (e.g., to increase protection to target groundfish species) in shaping policy decisions are in bold:

- 1. Provide more or improved protection for target species while also providing for sustainable fisheries (primary objective).**
- 2. Maintain healthy stocks important to commercial, recreational, and subsistence fisheries.**
- 3. Prevent overfishing and rebuild depressed stocks important to commercial, recreational, and subsistence fisheries. Increase long-term economic and social benefits to the nation from living marine resources.**
4. Recover and maintain protected species populations.
5. Reduce fishing conflicts that involve protected species and seabirds.
- 6. Protect, conserve, and restore living marine resource habitat.**
- 7. Conform to the National Standards and NPFMC Comprehensive Goals.**
8. Fully integrate procedures of the MMPA, ESA, FWCA, and FPA into the Magnuson-Stevens Act decision-making process.
9. Promote a stable planning environment for the seafood industry by keeping regulations stable when possible.
10. Promote efficient use of the resources, but not solely for economic purposes.
11. Minimize discards by developing management measures that encourage the use of gear and fishing techniques that minimize discards.
- 12. Establish minimum stock size thresholds for all managed groundfish stocks based on the best scientific information available.**
- 13. Maintain a margin of safety in recommending acceptable biological catches when the information concerning the resource is questionable and obtain additional biological and socioeconomic data in such instances.**
- 14. Use the precautionary approach when making decisions.**



#### **2.4.5 Alternative 4: Adopt a New Fisheries Management Policy Framework that Emphasizes Increased Protection to Non-Target and Forage Species**

This policy places greater emphasis on maintaining healthy fish stocks of non-target and forage fish, reducing bycatch and bycatch mortality, reducing discards, and using a precautionary approach when making decisions, while providing a future in which the American people are able to enjoy the wealth and benefits of diverse and self-sustaining living marine resources. The non-target species list is found in Appendix H. The following four overarching goals will serve the Council and NMFS as long-term achievements:

1. Provide sound conservation of living marine resources.
2. Provide socially and economically viable fisheries.
3. Allow no human-caused threats to protected species.
4. Maintain a healthy living marine resource habitat.

In accomplishing these broad goals, 14 policy objectives will be considered when making decisions. Those objectives being used to illustrate greater emphasis (e.g., to increase protection to nontarget groundfish species) in shaping policy decisions are in bold:

- 1. Prevent overfishing, maintain healthy stocks, and rebuild depressed stock of nontarget species (primary objective).**
- 2. Maintain healthy stocks important to commercial, recreational, and subsistence fisheries.**
- 3. Prevent overfishing and rebuild depressed stocks important to commercial, recreational, and subsistence fisheries. Increase long-term economic and social benefits to the nation from living marine resources.**
4. Recover and maintain protected species populations.
5. Reduce fishing conflicts that involve protected species and seabirds.
- 6. Protect, conserve, and restore living marine resource habitat.**
- 7. Conform to the National Standards and the Council's Comprehensive Goals.**
8. Fully integrate procedures of the MMPA, ESA, FWCA, and FPA into the Magnuson-Stevens Act decision-making process.
9. Promote a stable planning environment for the seafood industry by keeping regulations stable when possible.
10. Promote efficient use of the resources, but not solely for economic purposes.
- 11. Minimize discards by developing management measures that encourage the use of gear and fishing techniques that minimize discards.**
12. Establish minimum stock size thresholds for all managed groundfish stocks based on the best scientific information available.

13. Maintain a margin of safety in recommending acceptable biological catches when the information concerning the resource is questionable and obtain additional biological and socioeconomic data in such instances.
14. **Use the precautionary approach when making decisions.**

#### **2.4.6 Alternative 5: Adopt a New Fisheries Management Policy Framework that Emphasizes Increased Protection to Habitat**

This policy places greater emphasis on objectives to protect, conserve, and restore living marine resource habitat, while providing a future in which the American people are able to enjoy the wealth and benefits of diverse and self-sustaining living marine resources. The following four overarching goals will serve the Council and NMFS as long-term achievements:

1. Provide sound conservation of living marine resources.
2. Provide socially and economically viable fisheries.
3. Allow no human-caused threats to protected species.
4. Maintain a healthy living marine resource habitat.

In accomplishing these broad goals, 14 policy objectives will be considered when making decisions. Those objectives being used to illustrate greater emphasis (e.g., to increase protection to habitat, including essential fish habitat) in shaping policy decisions are in bold:

- 1. Protect and restore essential fish habitat while accruing benefits to marine ecosystems (primary objective).**
2. Maintain healthy stocks important to commercial, recreational, and subsistence fisheries.
3. Prevent overfishing and rebuild depressed stocks important to commercial, recreational, and subsistence fisheries. Increase long-term economic and social benefits to the nation from living marine resources.
4. Recover and maintain protected species populations.
5. Reduce fishing conflicts that involve protected species and seabirds.
- 6. Protect, conserve, and restore living marine resource habitat.**
- 7. Conform to the National Standards and the Council's Comprehensive Goals.**
8. Fully integrate procedures of the MMPA, ESA, FWCA, and FPA into the Magnuson-Stevens Act decision-making process.
9. Promote a stable planning environment for the seafood industry by keeping regulations stable when possible.
10. Promote efficient use of the resources, but not solely for economic purposes.

11. Minimize discards by developing management measures that encourage the use of gear and fishing techniques that minimize discards.
12. Establish minimum stock size thresholds for all managed groundfish stocks based on the best scientific information available.
13. Maintain a margin of safety in recommending acceptable biological catches when the information concerning the resource is questionable and obtain additional biological and socioeconomic data in such instances.
- 14. Use the precautionary approach when making decisions.**

#### **2.4.7 Alternative 6: Adopt a New Fisheries Management Policy Framework that Emphasizes an Increase in Socioeconomic Benefits**

Two distinct alternative policies are considered under Alternative 6. Alternative 6.1 is much broader than 6.2, in terms of both the range of benefits that would be considered and the time period over which benefits would be considered. This policy would place greater emphasis on increasing the long-term net economic benefits from the commercial groundfish fisheries. It seeks to include socioeconomic benefits without increasing TAC (e.g., get more value from what is currently harvested). Alternative 6.2 is a narrower policy that emphasizes short-term economic benefits. As with Alternatives 2 through 5, Alternative 6 shares the following four overarching goals:

1. Provide sound conservation of living marine resources.
2. Provide socially and economically viable fisheries.
3. Allow no human-caused threats to protected species.
4. Maintain a healthy living marine resource habitat.

**Alternative 6.1:** In accomplishing these broad goals, 13 policy objectives will be considered when making decisions. Those objectives being used to illustrate greater emphasis in Subalternative 6.1 are in bold:

- 1. Increase the long-term net economic benefits from the commercial groundfish fisheries to those who harvest and process groundfish, to the associated fishing communities, and to those who consume groundfish seafood products.**
- 2. Prevent preemption of one sector or fishing community by another.**
- 3. Maintain or increase levels of protection for protected species, target species, non-target species, and their habitat.**
4. Reduce fishing conflicts that involve protected species and seabirds.
5. Protect, conserve, and restore living marine resource habitat.
6. Conform to the National Standards and the Council's Comprehensive Goals.
7. Fully integrate procedures of the MMPA, ESA, FWCA, and FPA into the Magnuson-Stevens Act decision-making process.
8. Promote a stable planning environment for the seafood industry by keeping regulations stable when possible.

9. Promote efficient use of the resources, but not solely for economic purposes.
10. Minimize discards by developing management measures that encourage the use of gear and fishing techniques that minimize discards.
11. Establish minimum stock size thresholds for all managed groundfish stocks based on the best scientific information available.
12. Maintain a margin of safety in recommending acceptable biological catches when the information concerning the resource is questionable and obtain additional biological and socioeconomic data in such instances.
13. Use the precautionary approach when making decisions.

**Alternative 6.2:** The narrower alternative policy would place greater emphasis on the objective of increasing the short-term net economic benefits from the commercial groundfish fisheries to those who harvest and process groundfish, to the associated fishing communities, and to those who consume groundfish seafood products by allowing a substantially more aggressive harvest strategy. We recognize that actions taken to meet the narrower policy objective may be counterproductive with respect to meeting the broader policy objective.

In accomplishing this narrower policy emphasis, 13 policy objectives will be considered when making decisions. Those objectives being given greater emphasis in shaping policy decisions are in bold:

- 1. Maximize harvest of groundfish stocks while preventing overfishing (primary objective).**
- 2. Prevent overfishing and rebuild depressed groundfish stocks important to commercial, recreational, and subsistence fisheries.**
- 3. Maintain or increase levels of protection for protected species, target species, non-target species, and their habitat.**
4. Reduce fishing conflicts that involve protected species and seabirds.
5. Protect, conserve, and restore living marine resource habitat.
6. Conform to the National Standards and the Council's Comprehensive Goals.
7. Fully integrate procedures of the MMPA, ESA, FWCA, and FPA into the Magnuson-Stevens Act decision-making process.
8. Promote a stable planning environment for the seafood industry by keeping regulations stable when possible.
9. Promote efficient use of the resources, but not solely for economic purposes.
10. Minimize discards by developing management measures that encourage the use of gear and fishing techniques that minimize discards.
11. Establish minimum stock size thresholds for all managed groundfish stocks based on the best scientific information available.

12. Maintain a margin of safety in recommending acceptable biological catches when the information concerning the resource is questionable and obtain additional biological and socioeconomic data in such instances.
13. Use the precautionary approach when making decisions.

## **2.5 Agency's Preferred Alternative**

The National Marine Fisheries Service will determine its preferred alternative after it receives comments from the public on the programmatic alternatives.

## 2.6 Programmatic Alternatives Considered But Not Carried Forward

The National Marine Fisheries Service (NMFS) considered one programmatic policy alternative—the “No Fishing” alternative—then eliminated it for further analysis.

### 2.6.1 The No Fishing Policy

Humans have utilized fish resources from waters off North America for thousands of years. Such traditional use of fish as a food source and for commerce was recognized as a common practice during formation of the republic. Citizens of the United States have since continued to harvest fishery resources from waters off its coasts for more than 220 years.

A no fishing policy would end all commercial groundfish fishing in the Exclusive Economic Zone (EEZ) off Alaska. Adoption of such a policy would be inconsistent with the purposes of the Magnuson-Stevens Act, which states “to promote domestic commercial and recreational fishing under sound conservation and management principles. . . .” Briefly summarized, the Act’s ten National Standards require that the North Pacific Fishery Management Council (the Council) and its fishery management plans (FMPs)

1. will not allow overfishing, and will manage for optimum yield;
2. will use the best available scientific information;
3. will manage a stock throughout its range;
4. will not discriminate among residents of different states;
5. will promote efficient utilization of fishery resources;
6. will be flexible;
7. will manage in a cost-effective manner;
8. will take into account the importance of fishery resources to fishing communities and to the extent practicable, minimize adverse economic impacts on such communities;
9. will minimize bycatch and bycatch mortality to the extent practicable;
10. will promote safety of human life at sea.

In other words, the Magnuson-Stevens Fishery Conservation Management Act (Magnuson-Stevens Act) directs the Council and NMFS to authorize fisheries—no matter how large or small—as long as they are managed to be consistent with these ten National Standards.

When the Council first prepared its Gulf of Alaska (GOA) and Bering Sea and Aleutian Islands (BSAI) Groundfish FMPs, it considered a no fishing policy. In its analysis of this alternative, the Council found that adopting this policy would result in economic ruin of the fishing industry and place great hardship on fishing communities economically and socially dependent upon the BSAI and GOA groundfish resources. This policy was believed by the Council to be in violation of the Magnuson-Stevens Act in that it would prevent the United States from exploiting groundfish of the BSAI and GOA in its national interest (NPFMC 1981).

NMFS subsequently reviewed and prepared a detailed analysis of the effects of a no fishing policy in its Final Supplemental Environmental Impact Statement (SEIS) (NMFS 1998i). Such a policy would reduce EEZ fishing mortality to zero for all target groundfish and non-target species, resulting in no commercial catch except for harvests within the State of Alaska's jurisdiction and beyond 200 miles. The primary impact of this action would be to eliminate the impact of fishing on stock trends and conditions. For example, a pollock total allowable catch (TAC) of zero would eliminate the directed fishery for pollock and eliminate the risk of overfishing and localized stock depletion (provided harvests within Alaska waters remain low). A zero TAC for pollock and other directed fisheries would eliminate any bycatch of pollock caught in this fishery. A zero TAC of pollock and other groundfish would impact the amounts of groundfish available to the ecosystem. More commercial-sized fish would be available as prey and predators in the ecosystem. Additionally, zero TACs on the predators of pollock would increase the predation on pollock and other forage fish.

A no fishing policy could have positive benefits for the western stock of Steller sea lions if it eliminates fisheries harvest from a list of factors causing or contributing to Steller sea lion population decline. Direct takes from federally managed groundfish fisheries would be zero. Benthic communities would eventually move toward a prefished condition.

However, closing the fisheries would likely result in alterations to existing predator-prey relationships, which over time could influence the population dynamics of a particular resource. Fish stocks could decline below current levels. A no fishing policy would also eliminate thousands of jobs in the groundfish harvesting, processing, and support sectors. It would idle over \$1 billion of harvesting and processing capital, decrease the income of groundfish fishermen and processing plant employees by several hundred million dollars, and decrease the value of U.S. seafood exports by more than \$500 million. Few opportunities appear to offset these losses to the fishing industry, the communities from which they are based, and the nation. In short, implementation of such a policy would have widespread effects to the human environment.

NMFS concluded that such a policy was not the reasonable choice among the alternatives considered in its 1998 SEIS. Two years later, the agency still holds that view. A goal of NMFS is to provide sound conservation of living marine resources, while also providing socially and economically sustainable fisheries. A no fishing policy runs counter to this long-term goal. Therefore, this policy alternative was rejected for full analysis in this draft programmatic SEIS. (However, to better understand the general effects and trends of a no fishing policy, we direct the reader's attention to Chapter 4, Alternative 2.2, which illustrates the general suite of actions that would significantly reduce TACs from current levels to a point at which, arguably, some commercial fisheries would end.)



## **2.7 The Federal Action: Alaska Groundfish Fisheries and Their Management**

### **2.7.1 A History of Fisheries Prior to the Fishery Conservation and Management Act**

The human exploitation of marine fish, king crab, and whales for food and profit existed long before Congress passed the Magnuson-Stevens Act in 1976, and the two groundfish fishery management plans (FMPs) were developed by the North Pacific Fishery Management Council (the Council) and implemented by the Secretary of Commerce. Neither the Magnuson-Stevens Act nor the two groundfish FMPs cause the groundfish fisheries to occur. As long as marine fishery resources have value for human sustenance, fishermen will harvest them, and institutions like the Council and NMFS will seek to govern this activity to ensure long-term conservation and socioeconomic benefits. The following provides a brief historical summary of fisheries (groundfish fisheries, in particular) in the eastern Bering Sea and Gulf of Alaska (GOA) and of their governance prior to enactment of the Magnuson-Stevens Act, creation of the Council, and the Council's development of the GOA and Bering Sea and Aleutian Island (BSAI) Groundfish FMPs. (For information on the history, magnitude, and impacts of commercial whaling to the BSAI and GOA ecosystem, refer to National Research Council [1996]).

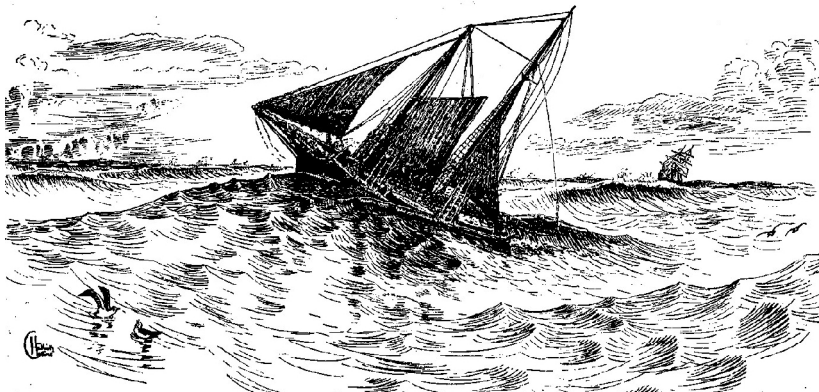
#### **2.7.1.1 The Earliest Fisheries**

Aboriginal use of fish for food and trade existed before the first Asian and European explorers and exploiters arrived off the shores of Alaska. These native subsistence fisheries have traditionally focused on nearshore species such as salmon, herring, shellfish (molluscan and crustacean), and a few demersal or groundfish species such as cod, halibut, and rockfish. These subsistence fisheries account for small amounts of fish relative to the commercial fisheries, and they continue in the present time.

Compared to the Atlantic cod resources on the Grand Banks off Newfoundland, Canada, which attracted European fishermen long before Columbus arrived in the Americas in 1492, the Pacific cod resources in the Bering Sea and GOA remained unknown to Europeans until the late eighteenth century (Jensen 1972, Cobb 1906). The first reported commercial groundfish fishery began in 1864, at the height of the U.S. Civil War, when the American fishing vessel *Alert* caught nine tons of cod in Bristol Bay (Cobb 1927). Three years earlier, in 1867, the U.S. purchase of Alaska from Russia was hailed as a boon to American fishermen because it allowed them to fish for cod without interference from the Russians. Free access to fisheries may have been a compelling factor in the Alaska purchase. The *New York Times* of April 1, 1867, reported “that a memorial from the Territorial legislature of Washington Territory dated January, 1866, asking the President to obtain certain rights for the fishermen, was the foundation of the present treaty” (Jensen 1972). That same year, another cod fishing expedition was made to the GOA, but regular annual fishery for Pacific cod did not commence off Alaska until 1882. This fishery continued until 1950, when demand for Pacific cod declined to the point that its diminished economic value caused it to cease (BSAI groundfish FMP Section 5.2.1.1, published November 19, 1979, 44 FR 66376). A fishery for sablefish (black cod) began about 1906, but was relatively unimportant until about 1935 (GOA groundfish FMP Section 3.2.1.2, published April 21, 1978, 43 FR 17253).

Non-groundfish marine resources were more significant in the economic development of Alaska. The earliest Russian explorers sought fur, not fish. Consequently, from the arrival of Vitus Bering in 1741, until the late 1800s when fisheries for Pacific salmon, Pacific cod, and other species began, fur seals, otters, and other fur-bearing animals were the focus of exploitation. The first small-scale fishing enterprise began in 1785 at the Karluk River on Kodiak Island to provide dried salmon to the Russian fur traders. In the early 1800s the Russian American Company shipped small quantities of salted salmon to St. Petersburg, Russia.

However, the commercial potential of the abundant Alaska salmon resource was not realized until the 1860s, when a technique for large-scale canning of salmon was developed. The first salmon cannery on the Pacific Coast opened in California in 1864, and salmon canneries were built in Alaska for the first time in 1878 (Cooley 1963). Another early commercial fishery was for Pacific halibut, which began in 1888, when the sailing vessel *Oscar and Hattie* landed 50,000 pounds of halibut in Tacoma,



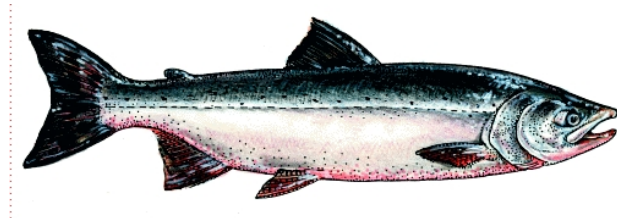
Halibut sailboat

Washington (IPHC 1988). Although cod fishermen reported that halibut were present in the Bering Sea and GOA in the 1800s, the fishery did not spread there until after World War I. Market demand for halibut grew as technology developed to ice and preserve halibut long enough to make it to markets in the East and Midwest. Increased demand inspired fishermen to explore for larger halibut resources farther north. The halibut fishery began in southeast Alaska, off the south end of Baranof Island in 1911 (Browning 1980).

#### **2.7.1.2 Early Fisheries Management**

In Alaska, fisheries management was virtually nonexistent during the 200 years between 1741 and 1941. Although the Tlingits in southeast Alaska had a complex system of owning fishing rights (Rogers 1960), until the late 1900s, non-natives in Alaska steadfastly resisted the ownership concept of fisheries management; preferring the common-pool approach in which fishery resources belong to all citizens. Regardless of the management system, some form of government intervention is required to ensure conservation of fishery resources and equitable distribution of their benefits. This became obvious almost immediately after Alaska was purchased from Russia. The following year, in 1868, the U.S. Treasury Department began to send agents to Alaska to protect fur seals and administer a lease to the Alaska Commercial Co. to harvest seals in the Pribilof Islands. As the Alaska salmon industry developed, government agents also collected taxes on processed salmon products (Fredin 1987).

In 1870, the federal government became more directly involved in fishery conservation when Congress authorized funds to investigate fisheries off New England, which began to decline in 1863. In 1871, Congress created the first federal fisheries agency, the U.S. Commission of Fish and Fisheries and appointed Spencer F. Baird the first commissioner. The commissioner's primary duty was to determine whether and to what extent marine food fishes (i.e., commercial species) had declined in abundance, and to report to Congress necessary remedial measures (Bowen 1970). Although neither fishery regulation nor fish propagation were in the Commission's charter, it recommended that state governments do the former, while the Commission conduct the latter. The fish culture work was directed primarily at northeastern marine and Great Lakes fisheries. In 1903, the Fish Commission became the Bureau of Fisheries of the Department of Commerce and Labor; among other duties it was given the responsibility to carry out the U.S. Treasury's fishery work in Alaska (Fredin 1987). Ten years later, in 1913, the department was split into separate Departments of Commerce and Labor, and the Bureau of Fisheries was lodged in the Department of Commerce.

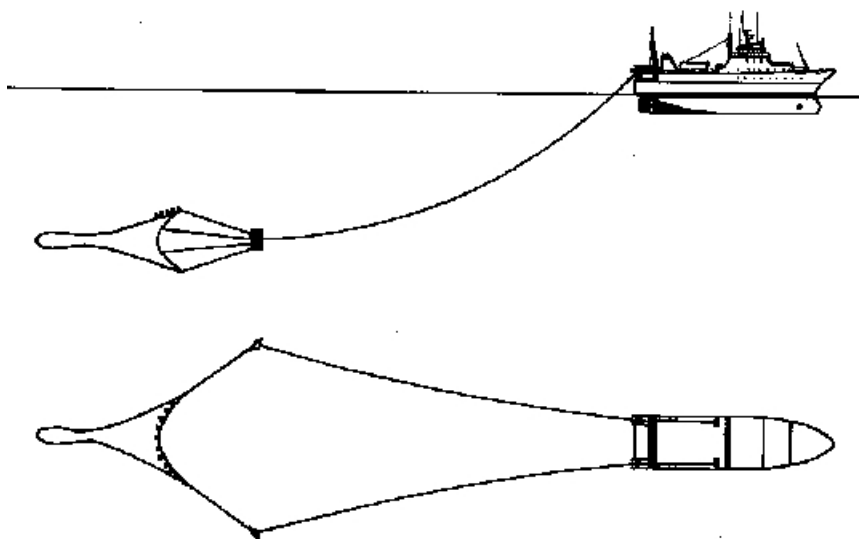


*Pink salmon*

Although little of the early fish commission's work concerned Alaska, shortly after Theodore Roosevelt became President, he ordered it to investigate the Alaska salmon fishery and recommend laws and regulations. David Starr Jordan was appointed to conduct the study, which, in 1904, called attention to the inadequacy of existing conservation measures. Although limiting the number of canneries was mentioned as desirable, more emphasis was given to

the need for government hatcheries "to maintain the supply of fish . . . without curtailing production" because restrictive regulations would be unpopular with the cannery owners and difficult to enforce (Cooley 1963). Although concern over the conservation of salmon continued to be raised throughout the early 1900s, Congress expressly denied the Alaska territorial government authority to regulate fisheries, arguably due to the political influence in Washington, D.C., of cannery owners who resided outside of Alaska in states with elected congressional representatives. In 1922, President Warren Harding, by executive order, established two "fishery reserves" in which the Secretary of Commerce was authorized to issue a limited number of cannery permits. Soon after, however, Congress passed "An Act for the Protection of the Fisheries of Alaska" (the White Act), which was signed by President Calvin Coolidge in 1924. As a compromise law, the White Act obviated the "reservation" system, but it also declared congressional intent that not less than 50 percent of the salmon should be allowed to escape the fishery, and gave the Secretary of Commerce broad powers to regulate fisheries in Alaska's territorial waters (Cooley 1963). Although salmon fisheries were the focus of the few fishery management regulations that existed during the early 1900s, two provisions that applied to groundfish were a prohibition against wanton waste, and any person engaged in catching or processing fish products was required to submit an annual report to the Department of Commerce and Labor (Fredin 1987). This early history of the Alaska salmon industry is important, because the salmon canneries evolved into the later-day groundfish processors.

Except for Pacific cod, and to a lesser extent sablefish, groundfish generally were ignored for targeted fisheries in the late 1800s and early 1900s. Market demand and the ability to transport fish products to market from remote locations in Alaska at reasonable cost determined whether a specific fishery would develop; not the



*Midwater or pelagic trawl*

abundance or availability of a particular species to fishermen. Hence, most groundfish, except for cod and halibut, were considered trash fish, with no value, and discarded or used for bait. For example, pollock was considered excellent bait for cod. The abundance of groundfish off Alaska and relatively low levels of exploitation during this period led fishermen and biologists to believe that this resource was inexhaustible (Fredin 1987).

Compared to current fisheries, the early groundfish fisheries were small in scale and used

hook-and-line gear either as handlines or setlines (long, anchored lines with hooks attached at intervals). Stationary gillnet gear was introduced in the New England cod fisheries in 1878, by fisheries Commissioner

Spencer F. Baird, and beam trawls towed by sailing vessels appeared in the 1890s, but the extent of their use in the Alaska cod fisheries is unknown. With the beginning of the twentieth century came the introduction of steam power to fishing vessels. This power source allowed the vessels to pull larger and more efficient otter trawls, which relied on otter boards or doors to open the mouth of a trawl instead of a beam (Jensen 1972). Beam trawl gear in the Pacific Northwest was first used in 1884, on a sail-powered fishing vessel, and a trade magazine in 1903 reported that an unnamed vessel was experimenting with an otter trawl in the halibut fishery in British Columbia. Over the next 40 years, trawl or drag fisheries became well-established in the Northwest, and presumably in Alaska, as collateral technologies were developed (Browning 1980).

The increased catching power of trawl gear, coupled with the advent of powered refrigeration and gear-handling equipment, electronic navigation, and other technologies, first posed a threat to the traditional Alaska fisheries for Pacific salmon, Pacific cod, sablefish, and halibut, but eventually opened fisheries for lower-valued groundfish species, such as flatfish and pollock, because the trawl gear allowed harvesting of larger volumes of fish. This is reflected in the early regulations. The first mention of trawling in Alaska fisheries regulations was in 1930: “The use of any trawl in commercial fishing operations is prohibited, provided that this prohibition shall not apply to fishing operations conducted solely for the purpose of taking shrimp” (Fredin 1987). This prohibition remained in effect until 1935, when it was relaxed to allow trawl gear to take flounder, provided the flounder fishing with trawl gear did not result in the capture, injury, or destruction of other food fish. The trawl prohibition was further liberalized in 1939, to allow fishing for king crabs west of 150° W, outside Cook Inlet. Eventually, in 1942, trawls were permitted in commercial fishing for all species except salmon, herring, and Dungeness crab (Fredin 1987).

Meanwhile, management of the Pacific halibut fishery took on an early international aspect. As fishermen from Canada and the United States conducted this fishery from northern California through Alaska shortly before World War I, fishery officials, fishermen, and dealers from both countries began to express concern about increasing amounts of gear and decreasing catch per unit of gear. Around 1913, Canadian and U.S. officials began to discuss the possibility of an international research and management agency. World War I slowed this work, but on March 2, 1923, the two nations finally ratified a halibut conservation treaty (Browning 1980). It established a four-person International Fisheries Commission, granting it limited regulatory powers and a principal charge to conduct research. The new Commission imposed an annual closure of the fishery from November 16 to February 15 to protect spawning halibut (Browning 1980). The treaty was renegotiated in 1930 and 1937 to enhance the Commission’s regulatory power, and in 1953 a treaty revision changed the name to the International Pacific Halibut Commission (IPHC).

### **2.7.1.3 Development of Alaska Groundfish Fisheries After World War II**

World War II marked a major turning point in the character of fisheries off Alaska. While the prewar period can be characterized by a fisheries development trend from relatively small-scale fisheries to organized commercial exploitation, the postwar period by comparison was a virtual revolution in the expansion of distant water fisheries and large industrial-scale operations. In the brief three decades from the end of World War II until the advent of Exclusive Economic Zone (EEZ) management under the Magnuson-Stevens Act, the harvest of all fisheries in the North Pacific (the area north of 30°N from Asia to North America, including the BSAI) increased from 8 million mt to 20 million mt. The greatest increases during this period came from catches of groundfish and crabs in the BSAI and GOA: groundfish catches grew from relatively insignificant levels to exceed 2 million mt per year in the early 1970s (Miles et al. 1982).

These changes resulted from technological developments (some of which, like radar, came about during the war) and changes in marketing and some nations’ fishery policies. Advances in science and technology in developed nations sowed the seeds of conflict for exploiting living marine resources and challenged the traditional international convention of freedom of the high seas generally accepted since the late eighteenth

century. The freedom of the seas convention was based on three related assumptions: (1) that waters of the high seas were not susceptible to effective occupation, (2) that the resources of the seas were inexhaustible, and (3) that any specific use of the seas would not impair or impose costs on other uses (Koers 1973). Events immediately preceding and during World War II demonstrated the fallacy of these assumptions. For example, Bracken (1983) provides evidence of a 55 percent decline in the catch per unit effort of sablefish and a decline in average weight from 8 pounds to 6.5 pounds off Alaska between 1937 and 1944. By the mid-1900s, these and other experiences from fisheries indicated the frailty of the second assumption, and the war itself demonstrated the relative utility of the first and third assumptions. To preemptively obviate the claims of other nations in the high seas adjacent to U.S. coasts, the Truman Proclamation of 1945 asserted the nation's right to adopt conservation measures in these areas and to require foreign nations to comply with them (Koers 1973). This unilateral claim was not effectively exercised with regard to fisheries resources until the Magnuson-Stevens Act was implemented beginning in 1977. Following is a brief description of the growth of distant water fisheries from the predominate nations involved in the BSAI and GOA groundfish fisheries before 1977.

## Japan

Although World War II severely decimated the fishing fleets of several nations, Japan and the Soviet Union undertook major rebuilding efforts as a means of stimulating their economies, and to provide a protein source for their people. Most of the larger Japanese fishing vessels were destroyed by the U.S. Navy during the war. Smaller vessels in the coastal fleet were inadequate for supplying sufficient food immediately after the war. Moreover, the Allied occupation of Japan severely limited expansion of Japanese fisheries. When these restrictions were liberalized in 1952, Japanese fisheries expansions to the north and west soon experienced conflict with Korean, Soviet, and Chinese fisheries. This resulted in a decision to relocate fisheries expansion from these areas to the North American coast, the BSAI in particular (Miles et al. 1982).

Japanese distant water fisheries were not new, however, and not new to the BSAI. The first expansion beyond Japanese coastal waters was to Sakhalin Island for salmon in the late 1700s. Later, as a result of Commodore Matthew Perry's success in 1854 to conclude an agreement with Japan to open its ports to American whaling vessels, a similar treaty between Japan and the Czar of Russia allowed joint occupation of Sakhalin Island, which led to significant expansion of the Japanese salmon fishery along the Russian coast. In 1875, Japan gained access to the Kuril Islands in exchange for renouncing its rights to Sakhalin. Thirty years later, the 1905 Treaty of Portsmouth returned Sakhalin to Japan and provided a basis for further extension of Japanese fisheries in the Sea of Okhotsk and the western Bering Sea. Japan's ability to catch and process fish from this northern area increased fivefold during the decade leading to the Russian Revolution but subsequent skirmishes with the Soviets caused Japanese fishermen to develop other distant water fisheries in the Yellow Sea and East China Sea during the 1920s. With this experience, Japanese fishermen initiated groundfish and crab trawl fisheries in the eastern Bering Sea in 1930. These early eastern Bering Sea fisheries primarily targeted pollock and flounders, but also halibut and king crab (Miles et al. 1982).

In 1929, Japanese exploratory fishing for crab and groundfish in the BSAI led to a king crab fishery in 1930, and a groundfish meal and oil fishery in 1933, making these two fisheries the original foreign distant water fisheries off Alaska. Pollock was the principal species targeted for the reduction fishery. In 1940, Japanese trawlers began fishing for groundfish in the eastern Bering Sea to supply a frozen food-fish market (Chitwood 1969). These fisheries likely would have continued annually but for two events: the hostilities of World War II, and establishment 30 years later of the EEZ under the Magnuson-Stevens Act, which gave U.S. fisheries preferential access to the BSAI and GOA fishery resources. The primary technological achievement that allowed for early Japanese success was the use of mothership fleets, in which trawlers delivered catches to a factory ship and surimi processing technology (FAJ 1976). This permitted use of the abundant pollock resource that was largely ignored by the United States and other countries due to its low value.

After World War II, the Japanese resumed groundfish fishing for freezing in the eastern Bering Sea in 1954, and resumed pollock fishing for meal and oil in 1958 (Chitwood 1969). Initial groundfish catches for freezer operations consisted primarily of pollock and flatfish species, and total catches ranged from 11,000 mt in 1955, to 33,000 mt in 1959. In the early 1960s, however, this fishery shifted to deeper water along the 100-fathom bathymetric curve and near the Aleutian Islands, and the primary species in the catch shifted to Pacific ocean perch. By 1966, a fleet of 14 factory trawlers, 2 motherships, and 13 catcher trawl vessels were involved in this fishery. The Japanese initiated a trawl fishery for groundfish in the GOA in 1963 with a small fleet of one factory trawler, one mothership, and five catcher vessels. By 1966, the fleet had increased to 10 factory trawlers and 13 catcher vessels. Most of the fishing in the GOA was along the 100-fathom curve in the western gulf, but Japanese trawlers also appeared off southeastern Alaska for the first time in 1966. The Japanese catch in the GOA that year was estimated to be 66,000 mt mostly Pacific ocean perch, but also pollock, arrowtooth flounder, and sablefish (Chitwood 1969).

A small Japanese longline fishery also developed in the late 1950s and early 1960s, primarily focused on catching sablefish but also catching Pacific cod, Pacific ocean perch, and other rockfish. It began first in the eastern Bering Sea but was extended to the GOA in 1963. In 1966, the Japanese government limited entry into this fishery to 22 vessels. The total catch of this fishery in 1975 was 29,000 mt (FAJ 1976). Also in 1963, after a 10-year ban on Japanese fishing for that species east of 175°W was relaxed, a fleet of 5 Japanese motherships and 66 longline catcher vessels commenced fishing for Pacific halibut (Chitwood 1969).

The resumption of the Japanese pollock fishery in the BSAI and North Pacific in 1958, however, led to the largest Japanese groundfish fisheries, by volume: by the early 1970s it peaked at 1.6 million mt (FAJ 1976). In 1975, six mothership fleets were producing surimi from a catch of more than 90 percent pollock. Each fleet consisted of one mothership processor and 9 to 30 trawl catcher vessels. A total of 137 catcher vessels provided product to the 6 motherships operating in 1975 (FAJ 1976). The mothership fleets operated from mid-April through December along the continental shelf break stretching from Cape Sarichef in the eastern Aleutian Islands to Cape Navarin in Russia. Most of this area is within the current U.S. EEZ. Another Japanese fishery focused on pollock was the North Pacific trawl fishery, which consisted of factory trawlers that processed their catch into either surimi or frozen product. Like the mothership fleet, the surimi trawler catch was more than 90 percent pollock, but the freezer trawler catch included rockfish and flatfish species, Pacific cod, sablefish, hake, squid, and herring, besides pollock. Compared to the mothership fishery, the North Pacific trawl fishery was more maneuverable, and its range outside of the Bering Sea included the GOA and along the United States west coast off Canada and Washington State. In 1975, the total catch of the North Pacific trawl fishery was 513,000 mt; the mothership fishery catch was 783,000 mt. Of the total 1,296,000-mt catch from these two fisheries, about 82 percent was pollock (FAJ 1976).

## **Soviet Union**

Like Japan, the Soviet Union undertook a major rebuilding effort after losing much of its fishing fleet in World War II. Unlike Japan, however, the Soviet Union had little prewar experience with distant water fisheries. This fisheries expansion effort substantially accelerated in 1955. Most Soviet fishing vessels at that time were built in East Germany and Poland, which were occupied by the Soviet Army, and sent to the U.S.S.R. as war reparations (Kra vanja 1976). The Soviets adopted existing fishing technology developed in other countries, most notably the stern factory trawler (a British invention), which allowed the use of much larger trawl nets than could be used on traditional side trawlers. The strategy of deploying flotillas of such trawlers that work together with support vessels, including processor, cargo, and provisioning vessels, was mainly a Soviet achievement (Pruter 1976). The decision to speed the building of these distant water fishing fleets was made at the highest levels in the government of the U.S.S.R. in 1956, and supported by an investment in the fishing industry of over 10 billion rubles between 1956 and 1975. By the end of that period, the Soviet fishing fleet was the largest in the world, comprising over 5,400 distant water vessels and accounting for at least half of the

world's total gross tonnage of such vessels (Pruter 1976). The total U.S.S.R. catch in 1975 (of all aquatic organisms, including plants, fish, and marine mammals) was 10.3 mt; six times the amount it harvested in 1950, and exceeded only by Japan.

The Soviets began commercial fishing operations off Alaska in the eastern Bering Sea in 1959 and expanded into the GOA in 1962. By late 1963, as many as 100 fishing and support vessels from the U.S.S.R. were operating off Alaska at any given time year-round (Chitwood 1969). No catch statistics were provided until 1964, however, when the U.S.S.R. began to provide these data to the Food and Agricultural Organization (FAO) of the United Nations. Obtaining accurate fishing mortality data was a general problem of the foreign distant water fisheries off Alaska. The cumulative catch of bottomfish by all nations during the period 1954–1974 was estimated to be over 22 million mt, of which Japan accounted for over 15 million mt, 67 percent, the U.S.S.R. nearly 6 million mt, 25 percent; and the United States about 1.5 million mt, 6 percent (Pruter 1976). The remainder was accounted for by fisheries from other nations, such as South Korea, Poland, East Germany, West Germany, Taiwan, and Canada. Historical catches of groundfish and squid taken in the Bering Sea, Aleutian Islands, and GOA are presented in Tables 2.7-1, 2.7-2, and 2.7-3, respectively. These catch statistics reveal the growth and magnitude of the foreign groundfish harvest off Alaska during the late 1950s through the early 1970s. Of particular note were the high catches of yellowfin sole in the Bering Sea, which peaked in 1962, and high catches of slope rockfish (e.g., Pacific ocean perch) in the GOA during the period 1963–1968. Both of these stocks were overfished, and while yellowfin sole is believed to have recovered, the slope rockfish stocks are still rebuilding.

### **Distant Water Fisheries of Other Nations**

The Republic of Korea (South Korea) also lost substantial fishing capacity during World War II but delayed in rebuilding it and expanding into distant water fisheries due to the outbreak of the Korean War in 1950. South Korea did develop a distant water fishery for pollock off the Soviet Union, however (Miles et al. 1982). In 1966, a South Korean vessel from the Pusan National Fisheries College conducted exploratory fishing off Alaska (Chitwood 1969), and vessels from that country began a pollock fishery in the eastern Bering Sea in 1968 (Miles et al. 1982). Neither North Korea nor China developed significant distant water fisheries in areas off Alaska before 1976; however, North Korea conducted some distant water fishing off the Soviet Union. Taiwan began fishing for sablefish and pollock off Alaska in 1970. Poland, East Germany, and Bulgaria also were late arrivals in the distant water fisheries off Alaska (Miles et al. 1982).

While the groundfish species targeted by Japan, the Soviet Union, and other foreign fisheries off Alaska during this pre-EEZ period were not significant traditional fisheries for Alaska's fishermen, the effect on domestic fisheries was fourfold. First, the lack of adequate catch statistics prevented U.S. scientists from determining whether these distant water fisheries were causing overfishing of target stocks. Second, the incidental or bycatch of salmon, halibut, and crab—for which there were traditional Alaska fisheries—in the distant water fisheries likely had a significant negative effect on harvests of these species by U.S. fishermen. Third, a wide variety of gear types were used by foreign fleets. Gear included variously configured benthic trawls, tangle nets (essentially large mesh trawls used to capture crabs), hook-and-longline gear, and a variety of pots. Such gear was used with little concern for its effects on fish habitat or for gear conflicts with American fishermen and preemption of their fishing grounds. Finally, the development and support of the foreign distant water fisheries off Alaska, as a matter of government policy by the participating nations, amounted to subsidies to which U.S. fishermen had relatively little ability to respond in kind. The result was effective preemption of the groundfish fisheries by the foreign distant water fisheries until 1977.

**Table 2.7-1 Groundfish and Squid Catches in the Eastern Bering Sea, 1954–1999, Blended Statistics in Metric Tons**

Year	Pollock	Pacific Cod	Sablefish	Pacific Ocean Perch Complex <sup>c</sup>	Other Rockfish	Yellowfin Sole	Greenland Turbot	Arrow Tooth Flounder	Other Flatfish	Rock Sole <sup>d</sup>	Atka Mackerel	Squid	Other Species	Total (All Species)
1954	a	a	a	a	a	12,562	a	a	a	a	a	a	a	12,562
1955	a	a	a	a	a	14,690	a	a	a	a	a	a	a	14,690
1956	a	a	a	a	a	24,697	a	a	a	a	a	a	a	24,697
1957	a	a	a	a	a	24,145	a	a	a	a	a	a	a	24,145
1958	6,924	171	6	a	a	44,153	a	a	a	a	a	a	147	51,401
1959	32,793	2,864	289	a	a	185,321	a	a	a	a	a	a	380	221,647
1960	a	a	1,861	6,100	a	456,103	36,843	b	a	a	a	a	a	500,907
1961	a	a	15,627	47,000	a	553,742	57,348	b	a	a	a	a	a	673,717
1962	a	a	25,989	19,900	a	420,703	58,226	b	a	a	a	a	a	524,818
1963	a	a	13,706	24,500	a	85,810	31,565	b	35,643	a	a	a	a	191,224
1964	174,792	13,408	3,545	25,900	a	111,177	33,729	b	30,604	a	a	a	736	393,891
1965	230,551	14,719	4,838	16,800	a	53,810	9,747	b	11,686	a	a	a	2,218	344,369
1966	261,678	18,200	9,505	20,200	a	102,353	13,042	b	24,864	a	a	a	2,239	452,081
1967	550,362	32,064	11,698	19,600	a	162,228	23,869	b	32,109	a	a	a	4,378	836,308
1968	702,181	57,902	4,374	31,500	a	84,189	35,232	b	29,647	a	a	a	22,058	967,083
1969	862,789	50,351	16,009	14,500	a	167,134	36,029	b	34,749	a	a	a	10,459	1,192,020
1970	1,256,565	70,094	11,737	9,900	a	133,079	19,691	12,598	64,690	a	a	a	15,295	1,593,649
1971	1,743,763	43,054	15,106	9,800	a	160,399	40,464	18,792	92,452	a	a	a	13,496	2,137,326
1972	1,874,534	42,905	12,758	5,700	a	47,856	64,510	13,123	76,813	a	a	a	10,893	2,149,092
1973	1,758,919	53,386	5,957	3,700	a	78,240	55,280	9,217	43,919	a	a	a	55,826	2,064,444
1974	1,588,390	62,462	4,258	14,000	a	42,235	69,654	21,473	37,357	a	a	a	60,263	1,900,092
1975	1,356,736	51,551	2,766	8,600	a	64,690	64,819	20,832	20,393	a	a	a	54,845	1,645,232
1976	1,177,822	50,481	2,923	14,900	a	56,221	60,523	17,806	21,746	a	a	a	26,143	1,428,565
1977	978,370	33,335	2,718	2,654	311	58,373	27,708	9,454	14,393	a	a	4,926	35,902	1,168,144
1978	979,431	42,543	1,192	2,221	2,614	138,433	37,423	8,358	21,040	a	831	6,886	61,537	1,302,509
1979	913,881	33,761	1,376	1,723	2,108	99,017	34,998	7,921	19,724	a	1,985	4,286	38,767	1,159,547
1980	958,279	45,861	2,206	1,097	459	87,391	48,856	13,761	20,406	a	4,955	4,040	34,633	1,221,944
1981	973,505	51,996	2,604	1,222	356	97,301	52,921	13,473	23,428	a	3,027	4,182	35,651	1,259,666



**Table 2.7-1 (Cont.) Groundfish and Squid Catches in the Eastern Bering Sea, 1954–1999, Blended Statistics in Metric Tons**

Year	Pollock	Pacific Cod	Sablefish	Pacific Ocean Perch Complex <sup>c</sup>	Other Rockfish	Yellowfin Sole	Greenland Turbot	Arrow Tooth Flounder	Other Flatfish	Rock Sole <sup>d</sup>	Atka Mackerel	Squid	Other Species	Total (All Species)
1982	955,964	55,040	3,184	224	276	95,712	45,805	9,103	23,809	a	328	3,838	18,200	1,211,483
1983	982,363	83,212	2,695	221	220	108,385	43,443	10,216	30,454	a	141	3,470	15,465	1,280,285
1984	1,098,783	110,944	2,329	1,569	176	159,526	21,317	7,980	44,286	a	57	2,824	8,508	1,458,299
1985	1,179,759	132,736	2,348	784	92	227,107	14,698	7,288	71,179	a	4	1,611	11,503	1,649,109
1986	1,188,449	130,555	3,518	560	102	208,597	7,710	6,761	76,328	a	12	848	10,471	1,633,911
1987	1,237,597	144,539	4,178	930	474	181,429	6,533	4,380	50,372	a	12	108	8,569	1,639,121
1988	1,228,000	192,726	3,193	1,047	341	223,156	6,064	5,477	137,418	a	428	414	12,206	1,810,470
1989	1,230,000	164,800	1,252	2,017	192	153,165	4,061	3,024	63,452	a	3,126	300	4,993	1,630,382
1990	1,353,000	162,927	2,329	5,639	384	80,584	7,267	2,773	22,568	a	480	460	5,698	1,644,109
1991	1,268,360	165,444	1,128	4,744	396	94,755	3,704	12,748	30,401	46,681	2,265	544	16,285	1,647,455
1992	1,384,376	163,240	558	3,309	675	146,942	1,875	11,080	34,757	51,720	2,610	819	29,993	1,831,954
1993	1,301,574	133,156	669	3,763	190	105,809	6,330	7,950	28,812	63,942	201	597	21,413	1,674,406
1994	1,362,694	174,151	699	1,907	261	144,544	7,211	13,043	29,720	60,276	190	502	23,430	1,818,628
1995	1,264,578	228,496	929	1,210	629	124,746	5,855	8,282	34,861	54,672	340	364	20,928	1,745,890
1996	1,189,296	209,201	629	2,635	364	129,509	4,699	13,280	35,390	46,775	780	1,080	19,717	1,653,355
1997	1,115,268	209,475	547	1,060	161	166,681	6,589	8,580	42,374	67,249	171	1,438	20,997	1,640,590
1998 <sup>e</sup>	1,101,428	160,681	586	1,134	203	101,310	8,303	14,985	39,940	33,221	901	891	23,156	1,486,739
1999 <sup>f</sup>	998,703	147,281	677	653	141	69,265	5,206	10,628	34,389	40,505	1,165	392	18,973	1,327,978

Notes: <sup>a</sup>Catch statistics not available.

<sup>b</sup>Arrowtooth flounder included in Greenland turbot catch statistics.

<sup>c</sup>Includes Pacific ocean perch, shortraker, roughey, northern and sharpchin.

<sup>d</sup>Rock sole prior to 1991 is included in other flatfish catch statistics.

<sup>e</sup>through December 31, 1998

<sup>f</sup>Through December 31, 1999 compiled from NMFS Region website ([www.fakr.noaa.gov](http://www.fakr.noaa.gov)).

Numbers do not include fish taken for research.

**Table 2.7-2 Groundfish and Squid Catches in the Aleutian Islands Region, 1962–1999, in Metric Tons**

Year	Pollock	Pacific Cod	Sablefish	Pacific Ocean Perch Complex <sup>c</sup>	Other Rockfish	Greenland Turbot	Yellowfin Sole	Rock Sole	Other Flat fish	Arrow Tooth Flounder	Atka Mackerel	Squid	Other Species	Total (All Species)
1962	a	a	a	200	a	a	a	a	a	a	a	a	a	200
1963	a	a	664	20,800	a	7	a	a	a	b	a	a	a	21,471
1964	a	241	1,541	90,300	a	504	a	a	a	b	a	a	66	92,652
1965	a	451	1,249	109,100	a	300	a	a	a	b	a	a	768	111,868
1966	a	154	1,341	85,900	a	63	a	a	a	b	a	a	131	87,589
1967	a	293	1,652	55,900	a	394	a	a	a	b	a	a	8,542	66,781
1968	a	289	1,673	44,900	a	213	a	a	a	b	a	a	8,948	56,023
1969	a	220	1,673	38,800	a	228	a	a	a	b	a	a	3,088	44,009
1970	a	283	1,248	66,900	a	285	a	a	a	274	949	a	10,671	80,610
1971	a	2,078	2,936	21,800	a	1,750	a	a	a	581	a	a	2,973	32,118
1972	a	435	3,531	33,200	a	12,874	a	a	a	1,323	5,907	a	22,447	79,717
1973	a	977	2,902	11,800	a	8,666	a	a	a	3,705	1,712	a	4,244	34,006
1974	a	1,379	2,477	22,400	a	8,788	a	a	a	3,195	1,377	a	9,724	49,340
1975	a	2,838	1,747	16,600	a	2,970	a	a	a	784	13,326	a	8,288	46,553
1976	a	4,190	1,659	14,000	a	2,067	a	a	a	1,370	13,126	a	7,053	43,465
1977	7,625	3,262	1,897	8,080	3,043	2,453	a	a	a	2,035	20,975	1,808	16,170	67,348
1978	6,282	3,295	821	5,286	921	4,766	a	a	a	1,782	23,418	2,085	12,436	61,092
1979	9,504	5,593	782	5,487	4,517	6,411	a	a	a	6,436	21,279	2,252	12,934	75,195
1980	58,156	5,788	274	4,700	420	3,697	a	a	a	4,603	15,533	2,332	13,028	108,531
1981	55,516	10,462	533	3,622	328	4,400	a	a	a	3,640	16,661	1,763	7,274	104,199
1982	57,978	1,526	955	1,014	2,114	6,317	a	a	a	2,415	19,546	1,201	5,167	98,233
1983	59,026	9,955	673	280	1,045	4,115	a	a	a	3,753	11,585	510	3,675	94,617
1984	81,834	22,216	999	631	56	1,803	a	a	a	1,472	35,998	343	1,670	147,022
1985	58,730	12,690	1,448	308	99	33	a	a	a	87	37,856	9	2,050	113,310
1986	46,641	10,332	3,028	286	169	2,154	a	a	a	142	31,978	20	1,509	96,259
1987	28,720	13,207	3,834	1,004	147	3,066	a	a	a	159	30,049	23	1,155	81,364
1988	43,000	5,165	3,415	1,979	278	1,044	a	a	a	406	21,656	3	437	77,383
1989	156,000	4,118	3,248	2,706	481	4,761	a	a	a	198	14,868	6	108	186,494
1990	73,000	8,081	2,116	14,650	864	2,353	a	a	a	1,459	21,725	11	627	124,886

**Table 2.7-2 (Cont.) Groundfish and Squid Catches in the Aleutian Islands Region, 1962–1999, in Metric Tons**

Year	Pollock	Pacific Cod	Sablefish	Pacific Ocean Perch Complex <sup>c</sup>	Other Rockfish	Greenland Turbot	Yellowfin Sole	Rock Sole	Other Flat fish	Arrow Tooth Flounder	Atka Mackerel	Squid	Other Species	Total (All Species)
1991	78,104	6,714	2,071	2,545	549	3,174	1,380	n/a	88	938	22,258	30	91	117,942
1992	54,036	42,889	1,546	10,277	3,689	895	4	236	68	900	46,831	61	3,081	164,513
1993	57,184	34,234	2,078	13,375	495	2,138	0	318	59	1,348	65,805	85	2,540	179,659
1994	58,708	22,421	1,771	16,959	301	3,168	0	308	55	1,334	69,401	86	1,102	175,614
1995	64,925	16,534	1,119	14,734	220	2,338	6	356	47	1,001	81,214	95	1,273	183,862
1996	28,933	31,389	720	20,443	278	1,677	654	371	61	1,330	103,087	87	1,720	190,750
1997	26,872	25,166	779	15,687	307	1,077	234	271	39	1,071	65,668	323	1,555	139,049
1998 <sup>d</sup>	23,821	34,964	595	13,729	385	821	5	446	54	694	56,195	25	2,448	134,182
1999 <sup>e</sup>	981	27,575	621	18,500	658	462	13	580	52	725	55,064	9	1,611	106,851

Notes: <sup>a</sup>Catch statistics not available.

<sup>b</sup>Arrowtooth flounder included in Greenland turbot catch statistics.

<sup>c</sup>Includes Pacific ocean perch, shortraker, rougheye, northern and sharpchin.

<sup>d</sup>through December 31, 1998

<sup>e</sup>Through December 31, 1999 compiled from NMFS Region website ([www.fakr.noaa.gov](http://www.fakr.noaa.gov)).

Numbers do not include fish taken for research.

**Table 2.7-3 Groundfish Landings in the Gulf of Alaska, 1956–1999, in Metric Tons**

Year	Pollock	Pacific Cod	Flatfish	Arrowtooth Flounder	Sablefish	Slope Rockfish <sup>b</sup>	Pelagic Shelf Rockfish <sup>a</sup>	Demersal Shelf Rockfish <sup>c</sup>	Thornyheads <sup>d</sup>	Atka Mackerel <sup>f</sup>	Other Species <sup>e</sup>	Total All Species <sup>h</sup>
1956	a	a	a	a	1,391	a	a	a	a	a	a	1,391
1957	a	a	a	a	2,759	a	a	a	a	a	a	2,759
1958	a	a	a	a	797	a	a	a	a	a	a	797
1959	a	a	a	a	1,101	a	a	a	a	a	a	1,101
1960	a	a	a	a	2,142	a	a	a	a	a	a	2,142
1961	a	a	a	a	897	16,000	a	a	a	a	a	16,897
1962	a	a	a	a	731	65,000	a	a	a	a	a	65,731
1963	a	a	a	a	2,809	136,300	a	a	a	a	a	139,109
1964	1,126	196	1,028	a	2,457	243,385	a	a	a	a	a	248,192
1965	2,749	599	4,727	a	3,458	348,598	a	a	a	a	a	360,131
1966	8,932	1,376	4,937	a	5,178	200,749	a	a	a	a	a	221,172
1967	6,276	2,225	4,552	a	6,143	120,010	a	a	a	a	a	139,206
1968	6,164	1,046	3,393	a	15,049	100,170	a	a	a	a	a	125,822
1969	17,553	1,335	2,630	a	19,376	72,439	a	a	a	a	a	113,333
1970	9,343	1,805	3,772	a	25,145	44,918	a	a	a	a	a	84,983
1971	9,458	523	2,370	a	25,630	77,777	a	a	a	a	a	115,758
1972	34,081	3,513	8,954	a	37,502	74,718	a	a	a	a	a	158,768
1973	36,836	5,963	20,013	a	28,693	52,973	a	a	a	a	a	144,478
1974	61,880	5,182	9,766	a	28,335	47,980	a	a	a	a	a	153,143
1975	59,512	6,745	5,532	a	26,095	44,131	a	a	a	a	a	142,015
1976	86,527	6,764	6,089	a	27,733	46,968	a	a	a	a	a	174,081
1977	112,089	2,267	16,722	a	17,140	23,453	a	a	0	19,455	4,642	195,768
1978	90,822	12,190	15,198	a	8,866	8,176	a	a	0	19,588	5,990	160,830
1979	98,508	14,904	13,928	a	10,350	9,921	a	a	0	10,949	4,115	162,675
1980	110,100	35,345	15,846	a	8,543	12,471	a	a	1,351	13,166	5,604	202,426
1981	139,168	36,131	14,864	a	9,917	12,184	a	a	1,340	18,727	7,145	239,476
1982	168,693	29,465	9,278	a	8,556	7,991	a	120	788	6,760	2,350	234,001
1983	215,567	36,540	12,662	a	9,002	7,405	a	176	730	12,260	2,646	296,988
1984	307,400	23,896	6,914	a	10,230	4,452	a	563	207	1,153	1,844	356,659

**Table 2.7-3 (Cont.) Groundfish Landings in the Gulf of Alaska, 1956–1999, in Metric Tons**

Year	Pollock	Pacific Cod	Flatfish	Arrowtooth Flounder	Sablefish	Slope Rockfish <sup>b</sup>	Pelagic Shelf Rockfish <sup>g</sup>	Demersal Shelf Rockfish <sup>c</sup>	Thornyheads <sup>d</sup>	Atka Mackerel <sup>f</sup>	Other Species <sup>e</sup>	Total All Species <sup>h</sup>
1985	284,823	14,428	3,078	a	12,479	1,087	a	489	81	1,848	2,343	320,656
1986	93,567	25,012	2,551	a	21,614	2,981	a	491	862	4	401	147,483
1987	69,536	32,939	9,925	a	26,325	4,981	a	778	1,965	1	253	146,703
1988	65,625	33,802	10,275	a	29,903	13,779	1,086	508	2,786	-	647	158,411
1989	78,220	43,293	11,111	a	29,842	19,002	1,739	431	3,055	-	1,560	188,253
1990	90,490	72,517	15,411	a	25,701	21,114	1,647	360	1,646	1,416	6,289	236,591
1991	107,500	76,997	20,068	a	19,580	13,994	2,342	323	2,018	3,258	1,577	247,657
1992	93,904	80,100	28,009	a	20,451	16,910	3,440	511	2,020	13,834	2,515	261,694
1993	108,591	55,994	37,853	a	22,671	14,240	3,193	558	1,369	5,146	6,867	256,482
1994	110,891	47,985	29,958	a	21,338	11,266	2,990	540	1,320	3,538	2,752	232,578
1995	73,248	69,053	32,273	a	18,631	15,023	2,891	219	1,113	701	3,433	216,585
1996	50,206	67,966	19,838	22,183	15,826	14,288	2,302	401	1,100	1,580	4,302	199,992
1997	89,892	68,474	17,179	16,319	14,129	15,304	2,629	406	1,240	331	5,409	230,448
1998 <sup>i</sup>	123,751	62,101	11,263	12,974	12,758	14,402	3,111	552	1,136	317	3,748	246,113
1999 <sup>k</sup>	93,442	68,606	8,822	16,207	12,227	17,970	4,659	297	1,283	262	3,859	227,634

Notes: <sup>a</sup>Catch statistics not available.

<sup>b</sup>Catch defined as follows: (1) 1961-1978, Pacific ocean perch (*S. alutus*) only; (2) 1979–1987, the five species of the Pacific ocean perch complex; 1988–1990, the 18 species of the slope rockfish assemblage; 1991–1995, the 20 species of the slope rockfish assemblage.

<sup>c</sup>Catch from Southeast Outside District.

<sup>d</sup>Thornyheads were included in the other species category, and are foreign catches only.

<sup>e</sup>After numerous changes, the other species category was stabilized in 1981 to include sharks, skates, sculpins, eulachon, capelin (and other smelts in the family Osmeridae) and octopus. Atka mackerel and squid were added in 1989. Catch of Atka mackerel is reported separately for 1990–1992; thereafter Atka mackerel was assigned a separate target species.

<sup>f</sup>Atka mackerel was added to the Other Species category in 1988.

<sup>g</sup>PSR includes light dusky rockfish, black rockfish, yellowtail rockfish, widow rockfish, dark dusky rockfish, and blue rockfish.

<sup>h</sup>Does not include at-sea discards.

<sup>i</sup>Catch data reported through November 6, 1999.

<sup>j</sup>Includes all species except arrowtooth flounder.

<sup>k</sup>Catch data reported through December 31, 1999.

For 1999 Other Species includes sculpin, shark, skate, squid, and octopus.

Eulachon and capelin are forage fish

#### **2.7.1.4 Post-World War II Fisheries Management Regimes**

About three decades transpired between the end of World War II and the advent of U.S. extended jurisdiction over fisheries management under what is now known as the Magnuson-Stevens Fishery Conservation and Management Act. During this time, the complexity of the fishery management regime for groundfish fisheries grew in rough proportion to the impact of those fisheries on groundfish and related stocks. In the early years of this period, before 1959, federal regulations focused on restricting trawl fishing gear. In 1948, minimum mesh sizes were set (5 inches in the bag; 6 inches in the wings), chain “ticklers” were prohibited, trawling was prohibited in areas of small halibut (areas closed to halibut fishing by the IPHC), and logs of fishing operations were required. In 1945 and 1946, in response to the decline of sablefish off southeastern Alaska (Section 2.7.1.3), fishing for that species was prohibited before March 15 and after November 30. In 1947, that open season was further restricted to between May 1 and November 30 (Fredin 1987).

Until 1959, all regulations affecting the groundfish fishery off Alaska were federal and were implemented by the Bureau of Commercial Fisheries. With Alaska’s achievement of statehood in 1959, state regulations began to be applied inside the 3-mile-wide territorial sea. These regulations primarily implemented licensing and reporting requirements, but they also limited the type of gear that could be used at certain times and in certain areas. For example, purse seines and pot gear were excluded in certain areas of the GOA at specified times. Off southeastern Alaska, a catch quota was established for sablefish in certain districts and time periods (NMFS 1976). Some conservation and management measures were implemented independently by Japan, however. In 1959, Japan closed an area off the north side of the Aleutian Peninsula to trawling by its groundfish vessels to prevent gear conflict with its crab fishery in that area (Fredin 1987). Although this action was taken to reduce internal conflicts, it may have had salutary effects on fish habitat. Japan also instituted an early limited access system, primarily to avoid conflicts among its many mothership and trawler fleets, but in 1963, it limited the number of licenses issued to vessels and restricted their area of operation to ease Canadian and U.S. concerns about the impact of Japanese trawl fisheries on halibut resources. By 1967, Japan had designated the areas of operation and limited the numbers of licensed vessels in all of its groundfish fisheries in the BSAI and GOA (Fredin 1987).

Other than the limited regulations imposed by the State of Alaska, however, the United States had virtually no authority to impose restrictions beyond its territorial sea. Notwithstanding the Truman Proclamation of 1945, the United States did not extend its jurisdiction over fisheries beyond its 3-mile-wide territorial limit until 1966, when enactment of Public Law 89-658 extended the exclusive jurisdiction of the United States over fisheries from 3 miles to 12 miles offshore (Miles et al. 1982). Although the establishment of the 9-mile fishery contiguous zone (CFZ) under this law was a harbinger of the ultimate fisheries jurisdiction claim of 200 miles ten years later, it was relatively ineffective in controlling the growth of foreign fishing capacity and groundfish harvests off the coast of Alaska. For these purposes, the United States relied primarily on multilateral and bilateral international agreements.

#### **Multilateral Agreements**

The United States became party to several multilateral agreements during the 1950s, but only one, the International North Pacific Fisheries Commission (INPFC) had any effect on the groundfish fisheries of the Bering Sea and GOA (Koers 1973, Miles et al. 1982). The INPFC involved Canada, Japan, and the United States in an agreement primarily to abstain from fishing on certain stocks of fish. Initially, administering the “abstention provisions” was the INPFC’s most important function (Koers 1973). Under these provisions, Japan agreed to abstain from fishing for salmon, herring, and halibut of American origin or found off the coast of North America, and Canada agreed to abstain from fishing for salmon originating in U.S. rivers. The INPFC was responsible for determining whether these stocks continued to qualify for abstention and whether new stocks met criteria for abstention by one or two member nations (Koers 1973). Lacking substantial

scientific information on the western migration of North American salmon, the INPFC determined that Japan would abstain from fishing for these species east of 175°W. Subsequently, knowledge was gained that North American salmon migrate west of that line and Asian salmon migrate east of that line. Japan began to lose interest in revising the abstention line in favor of Canada and the United States. In addition, despite responsibility to allocate catch, the INPFC did not have a research staff, relying instead on the fisheries data and research contributed by member governments (Miles et al. 1982).

The reliance on other governments' data and the attendant controversy of allocating salmon, and later halibut and herring, based on the abstention provisions severely limited the INPFC's attention to groundfish fisheries. It virtually ignored groundfish until 1961, when the United States raised concern regarding Japan's large-scale groundfish fisheries in the eastern Bering Sea. Finally, in 1967, the INPFC agreed to undertake joint study of groundfish other than halibut in the northeast Pacific Ocean, and in 1968, Pacific ocean perch in particular was to be the first groundfish resource assessed. The sablefish resource also came under INPFC scrutiny in 1971, and a study of halibut bycatch by Japanese groundfish trawlers was initiated in 1972 (Fredin 1987). No conservation and management recommendations were forthcoming from these studies, however, and among other factors, the large-scale entry into the Bering Sea fisheries of nonmember nations, namely the Soviet Union and South Korea, eventually eroded the INPFC's ability to act as a force in international management of these fisheries.

## **Bilateral Agreements**

More success on reaching international agreement on fishery management, albeit still limited, was realized through separate agreements between the United States and the foreign nations with distant water fisheries off Alaska. In his study of bilateral fishery agreements in the northeastern Pacific prior to 1976, William T. Burke observed that bilateral agreements were designed to treat five major problem areas: (1) gear conflicts, (2) access to areas subject to national jurisdiction, (3) allocation of stocks, (4) research activities and data sharing, and (5) visits aboard fishing vessels (Miles et al. 1982). Bilateral agreements that pertained to groundfish fisheries off Alaska were concluded between the United States and four other nations before 1976. Most of these agreements involved the two principal nations with distant water fisheries off Alaska, the U.S.S.R., and Japan, but the mid-1970s also saw agreements concluded with the Republic of Korea and Poland. The first of these agreements were negotiated in 1964, between the United States and U.S.S.R. and the United States and Japan. All of these agreements were of relatively short duration and renegotiated frequently to respond to changing conditions in the fisheries.

The first U.S.-U.S.S.R. bilateral agreement, signed in December 1964, established six areas off Kodiak Island that would be closed to Soviet trawls from July through October. The Kodiak King Crab Gear Area Agreement was designed primarily to reduce gear conflicts between the U.S. king crab fishery and Soviet trawlers in these areas off the south and western shores of Kodiak Island. The agreement was effective for three years and was extended without change in December 1967 through mid-February 1969 (Fredin 1987). Although this agreement directly benefitted U.S. king crab fisheries, it is included here because it was the first of a series of bilateral accords that either directly or indirectly relieved the groundfish and groundfish habitat in these areas of Soviet trawling impacts. In addition to resolving a gear conflict problem—at least in part—this agreement also addressed a crab resource allocation issue between the United States and U.S.S.R. The Soviet distant water fishery had conducted a king crab fishery off Alaska in the early 1960s, taking as many as 3.4 million crabs in 1961 (Naab 1971). Essentially, under this agreement, the crab resource off Kodiak Island was allocated away from Soviet fishermen, although they were permitted to continue their crab fishery in the eastern Bering Sea.

The establishment of the CFZ in 1966 gave the United States an important new tool in negotiating future bilateral agreements. This was reflected in the CFZ agreement between the United States and the U.S.S.R. in

February 1967. The 1967 CFZ accord allowed limited Soviet fishing within the 9-mile-wide CFZ in areas little used by U.S. fishermen off the Aleutian Islands and vessel support activity in certain areas within the CFZ in return for a ban on Soviet trawling in two large areas of international waters in the GOA during the first 15 days of the Pacific halibut fishing season set by the IPHC (Fredin 1987). Again, the objective of this agreement was to reduce gear conflicts between Soviet trawlers and U.S. fixed-gear fishermen, this time longline or setline gear used in the halibut fishery. The original 1967 CFZ accord was for only one year but it was later extended for another year. In 1969, it was modified and extended for two years, then modified again in 1971 (Naab 1971). The more recent modifications introduced more measures to protect conflicts with other fisheries important to U.S. fishermen, namely king and Tanner crab, shrimp, and scallop fisheries, in addition to the halibut fishery off Alaska (Fredin 1987).

Bilateral agreements between the United States and Japan were very similar in scope to those between the United States and the U.S.S.R. in that they focused on reducing conflict between U.S. fixed-gear fisheries for crab and halibut and Japanese fisheries. The first U.S.–Japan bilateral agreements concluded in 1964, established an area in the eastern Bering Sea adjacent to the north side of Unimak Island that was closed to Japanese fishing for king crab. The intent of this action was to reduce conflict between U.S. crab fishermen using pot gear and Japanese fishermen using tangle-net gear. In addition, the agreement set an annual Japanese production quota of 235,000 cases of canned king crab meat (Naab 1971). Based on one case containing 48 half-pound cans, this was equivalent to 5,640,000 pounds of crab meat. This agreement remained in effect through 1966. In 1966, the agreement was renegotiated to extend it for another two years, but the production quota was reduced to 185,000 cases annually. Renegotiation again in 1968, for another two years, further reduced the annual production quota to 85,000 cases of king crab meats, stipulated a new catch limit of 16 million Tanner crabs, and increased the size of the crab pot protection zone (Naab 1971). This crab pot sanctuary was part of a larger area that already was closed to Japanese trawling by unilateral action of Japan.

In May 1967, the United States and Japan negotiated another two-year CFZ accord similar to that previously negotiated with the U.S.S.R. This agreement (1) closed the same six areas off Kodiak to Japanese fishing that were closed to Soviet fishing in 1964, and (2) closed the same international waters in the GOA to Japanese fishing during the first 15 days of the halibut season that were closed to Soviet vessels in 1967. A third provision of the 1967 U.S.–Japan agreement was to close to Japanese fishing vessels an area outside the CFZ south of Unimak Island. In return, Japan was allowed to fish for crab within the CFZ around the Pribilof Islands, for other species (e.g., groundfish) with certain exceptions within the CFZ along the Aleutian Islands, and for whales within the CFZ off Alaska (except for an area in the GOA) and to conduct loading and support activities within the CFZ in certain areas in the GOA. This agreement was modified in December 1970 (Fredin 1987).

The two bilateral agreements—U. S.–U.S.S.R., and U.S.–Japan—may have had marginal benefits at best for the groundfish resources in the agreed-upon closure areas. In negotiating these agreements during the 1960s and early 1970s, U.S. policy matters focused on protecting the interests of traditional U.S. domestic fisheries (e.g., salmon, shellfish, and halibut). Notwithstanding the historic U.S. fisheries for Pacific cod and sablefish, the groundfish resources off Alaska apparently were not perceived as traditional enough or sufficiently important to U.S. domestic fisheries to warrant specific protection under the bilateral agreements. This situation changed in the early 1970s when U.S. sanctions of the growing Japanese and Soviet distant water fisheries for groundfish became difficult to maintain. For example, the total harvest of pollock in the eastern Bering Sea between 1964 and 1971, practically all of which was taken by either Japanese or the Soviet vessels, increased by nearly an order of magnitude, from 175,000 tons to 1.7 million tons in less than ten years. Also during this period, catches of some groundfish stocks, such as Pacific ocean perch and yellowfin sole, were decreasing as fishing effort was increasing (Fredin 1987). By 1971, roughly 1,300 fishing vessels were operating in the high seas fisheries off Alaska (Naab 1971).



This increased distant water fishing effort stimulated public concerns in Alaska and discussion in Congress and other venues in the early 1970s of the efficacy of the CFZ and the need to further extend U.S. jurisdiction over fisheries to 200 miles (Commerce Committee 1976). It was against this backdrop that U.S. negotiations with Japan in December of 1972, and with the U.S.S.R. in February 1973, for the first time included in the renegotiated CFZ agreements measures aimed directly at conservation of groundfish stocks. These measures were specific annual catch quotas in 1973 and 1974 for groundfish (pollock, Pacific ocean perch, and sablefish) harvests by Japanese and (flatfish) harvests by Soviet fisheries in addition to the season and area restrictions previously developed to protect the traditional domestic fisheries. These quotas reflected increased interest worldwide for extending coastal state jurisdiction over fisheries. As conservation measures, they were good first steps; however, they were initially set at levels about equal to recent years' average annual catches (Fredin 1987). While the growth of Japanese and Soviet distant water fisheries were held in check by these measures, these fisheries also were not severely constrained.

The final round of bilateral agreements with Japan and the U.S.S.R. were concluded in December 1974 with Japan, and July 1975 with the U.S.S.R. These agreements included more groundfish catch limits for the respective Japanese and Soviet fleets, with a slight decrease in the 1975–1976 annual pollock allocation to the Japanese mothership and trawl fisheries in the eastern Bering Sea. In addition to a large list of time and area closures, the final annual 1975–1976 catch limits negotiated for the Japanese groundfish fisheries are listed in Table 2.7-4 and for the Soviet trawl fisheries are listed in Table 2.7-5.

**Table 2.7-4 Annual Catch Quotas for the Japanese Groundfish Fishery off Alaska Pursuant to U.S.–Japan Bilateral Agreement for 1975–1976, in Metric Tons**

Area	Fishery	Species	Annual Quota 1975-1976 (metric tons)
Eastern Bering Sea	Mothership, trawl Land-based trawl	Pollock	1,100,000
		Other groundfish	160,000
		All groundfish	35,000
Aleutian Islands	Mothership, trawl, longline Land-based trawl Longline	Pacific ocean perch	9,600
		Sablefish	1,200
		All groundfish	8,500
Gulf of Alaska	Trawl Trawl, longline	Sablefish	25,000
		Sablefish	5,000
		Rockfish	60,000
		Other groundfish	30,000

**Table 2.7-5 Annual Catch Quotas for the U.S.S.R. Groundfish Fishery off Alaska Pursuant to the U.S.–U.S.S.R. Bilateral Agreement for 1975–1976, in Metric Tons**

Area	Species	Annual Quota 1975-1976 (metric tons)
Eastern Bering Sea	Pollock	210,000
	Other groundfish and flatfish	120,000
Aleutian Islands	Rockfish	12,000
	Other groundfish	16,000
Gulf of Alaska	Pollock	40,000
	Rockfish	10,000
	Other groundfish	30,000

These groundfish catch quotas negotiated for Japan and the U.S.S.R. were based almost entirely on analyses and data provided by Japan. Little or no data provided by the U.S.S.R. was useful for stock assessment purposes (Fredin 1987). Of less significance were bilateral agreements between the United States and the Republic of Korea (South Korea) in 1972, and Poland in 1975. Under these agreements South Korea agreed not to fish for salmon or halibut east of 175°W in the BSAI and the GOA (Fredin 1987). In return, South Korea was granted fishery support operations in specified areas within the CFZ. Poland likewise agreed not to conduct specialized fisheries for rockfish, sablefish, flatfish, anchovies, Pacific mackerel, herring, or shrimp in 1976 (NMFS 1976).

A notable weakness of the bilateral agreements was that the authority to enforce their provisions (i.e., time and area closures, catch quotas, etc.) generally was left to the affected nation. This generated public doubt about whether strict compliance with the provisions was being observed. In one U.S.–U.S.S.R. bilateral agreement, however, arrangements were made for visits by representatives of fishermen’s organizations of the two states to the others’ fishing vessels operating in the northeastern Pacific. While these visits did not constitute an official appraisal of compliance, they were important for maintaining confidence in the utility of the bilateral agreement (Miles et al. 1982). Another view that led fishery managers and the general public to lose faith in the ability of bilateral agreements to conserve and manage high seas fishery resources in the North Pacific was expressed by Hiroshi Kasahara in 1973:

While the present international fishery management regime consists of a complex network of ad hoc arrangements, some of the largest high seas fisheries in the area which have real or potential international implications are not covered by any of the existing agreements . . . Thus, in spite of the various specific agreements for fisheries in the North Pacific, well over 90 percent of the total catch comes from fisheries currently not subject to international regulation. This by itself may not be considered a serious defect . . . [however, a] real problem is the lack of mechanisms for monitoring the status of these fisheries and resources on which they are based, to predict international management problems likely to arise, and to accommodate consultations to resolve them in a timely fashion (Kasahara 1973).

## **2.7.2 Evolution of Fishery Management Plans**

### **2.7.2.1 Fishery Management Plans**

Fishery management plans (FMPs) provide the basis for federal regulations used to manage fisheries under regional council jurisdiction. The Magnuson-Stevens Act already established lists the first function of the councils as follows:

(1) for each fishery under its authority that requires conservation and management, [to] prepare and submit to the Secretary (A) a fishery management plan, and (B) amendments to each such plan that are necessary from time to time (and promptly, whenever changes in conservation and management measures in another fishery substantially affect the fishery for which such plan was developed) (Section 302[h]).

FMP components generally include management objectives, management units, habitat issues, management alternatives, summary of benefits and adverse impacts of each alternative, management measures, rationale and net benefit discussion, plan for continuing Council review and monitoring of the FMP or amendment, and supporting material describing the fishery, and its ecological, economic, and social setting. Required provisions are listed in Section 303(a) and discretionary provisions in Section 303(b). Each FMP must be approved by the Secretary of Commerce in accordance with provisions of Section 304(a).

The balance of specificity between FMPs and their implementing regulations has changed over time. Early FMPs contained very specific management measures and harvest levels that could only be changed through a lengthy plan amendment process, which could require 18 to 24 months from problem identification to a change in management. This process has been alleviated somewhat over time as framework management tools were incorporated into the FMPs that allow for management changes within prescribed boundaries. For example, harvest levels are now adjusted through a relatively brief specifications process; before, each species had an optimum yield that could only be changed through plan amendment. Under the plan amendment process, changes in harvest limits often lagged behind changes in stock abundance. In addition, federal regulations often lagged behind changes in regulations for adjacent state waters, causing conflicts and confusion where stocks had to be managed as a unit throughout their range.

The description of evolution of the FMPs and their regulations that follows will emphasize five issue areas: (1) target species protection, (2) bycatch control, (3) the social and economic well-being of domestic resource users, (4) marine mammal and seabird protection, and (5) habitat protection. Table 2.7-6 provides an overview of major management changes since before the Act was passed. Figure 2.7-1 shows changes in the balance of domestic, joint-venture, and foreign harvests over time.

### **2.7.2.2 Pre-1976 Groundfish Management**

A very robust foreign groundfish fishery operated off Alaska long before the Magnuson-Stevens Act was passed in April 1976. Japan began fishing flatfish in the Bering Sea in the early 1950s and in the GOA in 1963. The Soviet Union sent exploratory fleets to the Bering Sea in 1958 and commenced commercial operations in 1959 on yellowfin sole and red king crab, and then expanded into Pacific ocean perch and herring in 1960. The Soviets moved into the GOA in 1964, pulse fishing and decimating Pacific ocean perch stocks before moving on to new fishing grounds off Washington and Oregon. The Republic of Korea (South Korea) began fishing in the Bering Sea in 1967 and in the GOA in 1972. Poland sent one stern trawler to fish briefly in the GOA and Bering Sea in late 1973, taking less than 500 mt of pollock and herring.

Taiwan commenced operations off Alaska in 1974–1975, trawling for pollock and gillnetting for salmon in the central and eastern Bering Sea, and longlining for sablefish off southeast Alaska.

In the early 1960s, the United States had fisheries authority to only 3 miles, and even those waters were only closed to all foreign fishing 1964 Public Law 88-308. The United States thus had little leverage to restrict large offshore Japanese and Soviet operations during their initial build-up. Fisheries research and information exchanges were conducted initially with Japan and Canada under the auspices of the International North Pacific Fisheries Commission (INPFC), but that body focused primarily on salmon interception issues beginning. The Japanese provided some catch data, but the Soviets, fishing on five-year plans, and in the midst of the Cold War, provided very little information on their harvests.

In 1996, Public Law 89-658 extended U.S. fisheries jurisdiction from 3 to 12 miles. The law provided for continued foreign fishing there, but significantly increased U.S. leverage in controlling those fisheries. For example, INPFC first considered joint studies of groundfish (other than halibut), such as Pacific ocean perch and sablefish, in 1967–1971. It produced no joint conservation recommendations for either species, even though both stocks were recognized to be in jeopardy. The INPFC and the United States-Canada International Pacific Halibut Commission (IPHC) began a joint monitoring program for halibut bycatch in Japanese trawl fisheries in the eastern Bering Sea in 1972.

**Table 2.7-6 Brief History of Fisheries Management Measures**

Target Species	Bycatch Controls	Socioeconomic Benefits	Marine Mammals/Seabirds	Habitat
<b>BILATERALS: Pre-1977 (Foreign Fisheries Only)</b>				
<ul style="list-style-type: none"> <li>Foreign fishing catch quotas for eastern BS pollock/flatfish and GOA Pacific ocean perch/sablefish—self-monitored</li> </ul>	<ul style="list-style-type: none"> <li>Time/area closures to reduce halibut and crab bycatch</li> <li>No halibut retention in trawls</li> <li>Limited monitoring of bycatch of halibut</li> </ul>	<ul style="list-style-type: none"> <li>Foreign fishing time/area closures to reduce conflict with domestic fisheries for halibut and crab</li> </ul>	<ul style="list-style-type: none"> <li>Foreign fishing closures to protect Pribilof fur seals</li> <li>Short-tailed albatross designated endangered, 1970</li> </ul>	
<b>PRELIMINARY MANAGEMENT PLANS: 1977 (Foreign Fisheries Only)</b>				
<ul style="list-style-type: none"> <li>TACs and TAC-related closures in BSAI and GOA</li> <li>Monthly/annual catch reports</li> <li>Observers</li> <li>Trawl area closures to protect spawning pollock and flounders</li> </ul>	<ul style="list-style-type: none"> <li>Time/area closures expanded</li> <li>No retention of halibut, crab, salmon, shrimp</li> <li>Bristol Bay Pot Sanctuary closed to trawling all year</li> <li>No herring fisheries east of 168°W in Bering Sea</li> <li>Extensive trawl closures in GOA to protect halibut</li> </ul>	<ul style="list-style-type: none"> <li>Foreign fishing time/area closures to reduce conflict with domestic fisheries for halibut and crab</li> </ul>	<ul style="list-style-type: none"> <li>Recognition of direct/indirect effects of fisheries on marine mammals and seabirds</li> </ul>	
<b>FIRST FISHERY MANAGEMENT PLANS: 1979–1982 (Mainly Foreign Fisheries)</b>				
<u>1979–GOA</u> Species OYs/three areas <ul style="list-style-type: none"> <li>20 percent reserve</li> <li>OY closures</li> <li>Catch monitoring/reporting/observers (foreign vessels only)</li> </ul> <u>1982–BSAI</u> Species Oys/two areas <ul style="list-style-type: none"> <li>four species categories</li> <li>Objective: rebuild depleted stocks</li> <li>Monitoring/observers (foreign vessels only)</li> <li>5 percent or 500 mt reserve</li> <li>TAC closures</li> </ul>	<u>GOA</u> Objective: Protect halibut <ul style="list-style-type: none"> <li>No retention of PSC species</li> <li>Bottom trawl restrictions</li> <li>Domestic halibut PSC for part of year</li> <li>Expanded time/area closures</li> </ul> <u>BSAI</u> Objective: Rebuild halibut <ul style="list-style-type: none"> <li>Expanded time/area closures</li> <li>PSCs in separate category</li> <li>No closures for U.S. fishermen</li> <li>Foreign longline depth restrictions to protect halibut</li> </ul>	<u>GOA</u> <ul style="list-style-type: none"> <li>Domestic priority to groundfish</li> <li>Year-round closures to foreign fishing inside 12 miles</li> <li>three closures off southeast Alaska</li> <li>Davidson Bank closed</li> </ul> <u>BSAI</u> Objective: Develop U.S. fisheries <ul style="list-style-type: none"> <li>Time/area closures in Bristol Bay Pot Sanctuary, Petrel Bank, and other areas to prevent gear conflicts and grounds preemption</li> </ul>	<ul style="list-style-type: none"> <li>Descriptions of marine mammal and seabird issues in FMPs</li> </ul>	Descriptions of habitat

**Table 2.7-6 (Cont.) Brief History of Fisheries Management Measures**

Target Species	Bycatch Controls	Socioeconomic Benefits	Marine Mammals/Seabirds	Habitat
<b>1983–1985 (Mainly Foreign and Joint Venture Fisheries)</b>				
<p>Expanded catch reporting requirements for domestic vessels</p> <ul style="list-style-type: none"> <li>• OY range in BSAI</li> <li>• Annual stock assessment document in BSAI</li> <li>• Directed Fishing Standards</li> <li>• Species categories in GOA/BSAI</li> <li>• Western and Central GOA combined for pollock</li> <li>• GOA pollock TAC reduced in response to scientific advice</li> </ul>	<p><u>GOA</u></p> <ul style="list-style-type: none"> <li>• Cod TALFF in GOA allocated to foreign longliners to reduce trawl bycatch</li> <li>• Foreigners must report bycatch</li> <li>• Biodegradable panels in sablefish pots</li> <li>• Southeast (east of 140°W) closed to all foreign fishing to protect halibut</li> <li>• Halibut PSC raised for U.S. fishermen, but pelagic trawls exempted</li> <li>• Foreigners must use off-bottom trawls all year</li> <li>• Joint ventures have observers on foreign processors</li> <li>• Major PSC framework in GOA</li> </ul> <p><u>BSAI:</u></p> <ul style="list-style-type: none"> <li>• Chinook salmon PSC</li> <li>• Also PSC on halibut, crab</li> <li>• Foreign trawl restrictions in Petrel Bank</li> <li>• Major policy statement for U.S. fisheries to control their bycatch</li> </ul>	<p><u>GOA</u></p> <ul style="list-style-type: none"> <li>• Kodiak Gear Area closed to foreign trawls to protect crab fishermen and gear</li> <li>• U.S. trawls and pots banned in eastern GOA for sablefish</li> <li>• Magnuson-Stevens Act priority allocations to U.S. fishermen</li> </ul>	<p><u>BSAI</u></p> <ul style="list-style-type: none"> <li>• Overall OY set low to help marine mammals and seabirds</li> <li>• Council votes later to keep 2 million mt cap</li> </ul>	<p>Council prohibits discard of net and debris</p>

**Table 2.7-6 (Cont.) Brief History of Fisheries Management Measures**

Target Species	Bycatch Controls	Socioeconomic Benefits	Marine Mammals/Seabirds	Habitat
<b>1986–1990 (Mainly Joint Venture and Domestic Fisheries)</b>				
<u>GOA</u> <ul style="list-style-type: none"> <li>• OY Range</li> <li>• Reporting requirements for U.S. catcher processors</li> <li>• Shelikof District to protect pollock</li> <li>• Comprehensive observer program (BSAI/GOA)</li> </ul> <u>BSAI</u> <ul style="list-style-type: none"> <li>• Revised definitions of ABC, threshold, overfishing definitions</li> <li>• Ban pollock roe stripping (BSAI and GOA)</li> </ul>	<u>GOA</u> <ul style="list-style-type: none"> <li>• Type I–III closures off Kodiak</li> <li>• Framework PSC in GOA</li> <li>• Observer program</li> <li>• 2,000 mt PSC halibut for U.S. trawlers; 750 mt for longliners</li> <li>• Ban pollock roe stripping</li> <li>• Maximum retainable bycatches introduced</li> <li>• Full utilization policy</li> <li>• Apportion halibut PSC by quarter</li> <li>• Halibut excluder devices and biodegradable panels on sablefish pots</li> </ul> <u>BSAI</u> <ul style="list-style-type: none"> <li>• First total closures to U.S. trawling</li> <li>• Observers</li> <li>• PSC limits for halibut, crab, herring</li> <li>• PSC closures</li> <li>• Season delays to protect halibut</li> <li>• Seasonal PSC allocations</li> </ul>	<ul style="list-style-type: none"> <li>• Foreign fisheries end in EEZ</li> <li>• Joint ventures peak in 1987 and rapidly decline</li> </ul>	<ul style="list-style-type: none"> <li>• Council votes against raising 2 million mt OY cap in BSAI</li> <li>• Walrus Island closure</li> <li>• Steller sea lions listed as threatened</li> <li>• Initial sea lion protections implemented</li> <li>• NMFS begins monitoring seabirds and fishing interactions</li> </ul>	<ul style="list-style-type: none"> <li>• NMFS policy added to FMP</li> <li>• Council approves habitat policy and committee</li> <li>• Bottom trawl closures</li> </ul>

**Table 2.7-6 (Cont.) Brief History of Fisheries Management Measures**

Target Species	Bycatch Controls	Socioeconomic Benefits	Marine Mammals/Seabirds	Habitat
<b>1991–1995 (Fully Domestic Fisheries)</b>				
<ul style="list-style-type: none"> <li>• New overfishing definitions</li> <li>• Bogoslof District established</li> <li>• Pacific ocean perch rebuilding plan</li> <li>• Aleutian Islands district for Atka mackerel</li> <li>• Sablefish/Halibut IFQs</li> </ul>	<ul style="list-style-type: none"> <li>• Biodegradable panels on all pots</li> <li>• Refined pelagic trawl definition</li> <li>• Hotspot authority</li> <li>• Herring PSC revised</li> <li>• Experimental fishing permits</li> <li>• Seasonal delays to reduce bycatch</li> <li>• VIP program</li> <li>• Careful release program</li> <li>• Halibut PSC based on mortality</li> <li>• Salmon donation program</li> <li>• Seine/gillnet ban for groundfish</li> <li>• Chum salmon PSC</li> <li>• Minimum mesh size in trawls</li> <li>• Expanded Bering Sea closures</li> <li>• Pribilof closure</li> </ul>	<ul style="list-style-type: none"> <li>• Pollock/cod inshore-offshore</li> <li>• CDQs</li> <li>• IFQs</li> <li>• Pribilof closure</li> <li>• Moratorium</li> </ul>	<ul style="list-style-type: none"> <li>• Spectacled eider listed</li> <li>• Observers on crab vessels receive seabird identification training</li> <li>• Rookery/haulout closures</li> <li>• Pollock allocation by area and season</li> <li>• GOA pollock set low to help sea lions</li> <li>• Sea lion recovery plan</li> <li>• Aleutian Islands subarea – Atka mackerel</li> <li>• Sea lion critical habitat designated</li> <li>• Pribilof closure</li> </ul>	<ul style="list-style-type: none"> <li>• Pribilof closure</li> </ul>
<b>1996–2000+ (Fully Domestic Fisheries)</b>				
<ul style="list-style-type: none"> <li>• GOA Pacific ocean perch rebuilding plan revised</li> <li>• Overfishing definitions revised twice</li> </ul>	<ul style="list-style-type: none"> <li>• Red king crab PSC revised</li> <li>• Closed nearshore areas</li> <li>• Halibut donation program</li> <li>• Opilio Tanner crab PSCs</li> <li>• Bairdi Tanner crab PSCs</li> <li>• Improved retention/utilization program</li> <li>• Bottom trawl ban for pollock</li> <li>• Chinook PSCs enacted and then reduced</li> <li>• Halibut mortality avoidance pilot program</li> <li>• Full retention of demersal shelf rockfish</li> <li>• Forage fish ban</li> </ul>	<ul style="list-style-type: none"> <li>• Inshore-offshore allocations extended</li> <li>• Atka mackerel jig allocation</li> <li>• CDQ</li> <li>• Moratorium</li> <li>• License Limitation Program</li> <li>• Cod allocations by gear type</li> </ul>	<ul style="list-style-type: none"> <li>• Seabird avoidance measures</li> <li>• Take limits on shorttailed albatross</li> <li>• More sea lion critical habitat designated</li> <li>• Forage fish ban</li> <li>• Extensive sea lion protective measures</li> </ul>	<ul style="list-style-type: none"> <li>• EFH guidelines</li> <li>• EFH descriptions in FMPs</li> <li>• Sitka Pinnacle closure</li> <li>• Habitat Areas of Particular Concern (HAPC), Part I: no commercial fishing for sponges and corals</li> <li>• HAPC, Part II: Stakeholder process begins</li> <li>• Nonpelagic trawl closures</li> </ul>

Notes: ABC – Acceptable biological catch  
BSAI – Bering Sea and Aleutian Islands  
CDQ – Community Development Quota  
EFH – essential fish habitat  
FMP – Fishery Management Plan

GOA – Gulf of Alaska  
HPAC – habitat area of particular concern  
IFQ – Individual Fishing Quota  
mt – metric ton  
NMFS – National Marine Fisheries Service

OY – Optimum Yield  
PSC – Prohibited Species Catch  
TAC – total allowable catch  
TALFF – Total Allowable Level of Foreign Fishing

Source: NMFS

## ALASKA GROUNDFISH HARVEST

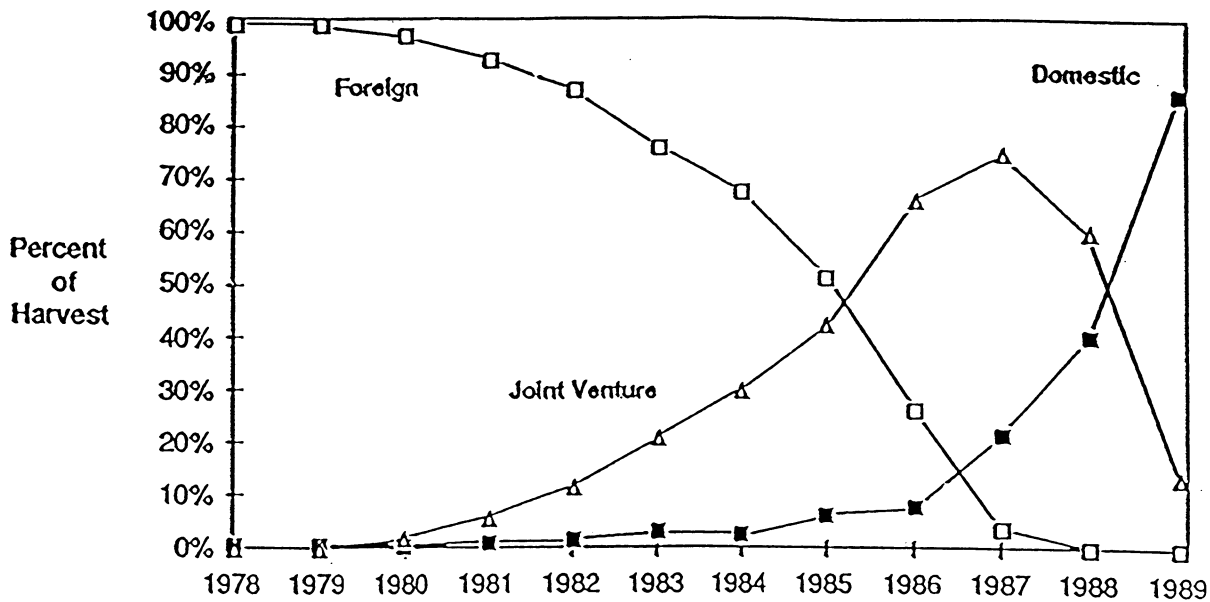


Figure 2.7-1 Alaska groundfish harvest. Source: NPFMC

U.S.-foreign bilateral agreements were the main mechanism for managing foreign fisheries. Beginning in 1967, a king crab bilateral was negotiated with the Soviets in 1965 and a groundfish bilateral in February 1967. Bilaterals were also negotiated with Japan in 1967. The early bilaterals focused on protecting domestic crab, halibut, and shrimp fisheries from gear conflicts and grounds preemption by foreign trawlers, and protecting fur seal populations in the Pribilof Islands (Figures 2.7-2 and 2.7-3).

By the early 1970s, foreign operations had spread from Alaska south to the Pacific Coast off Washington and Oregon, leaving very depressed stocks in their wake off Alaska. Yellowfin sole catches in the eastern Bering Sea, for example, fell sharply following very large removals by Japan and the Soviet Union. Pacific ocean perch stocks were decimated, and pollock catches were increasing rapidly and were thought likely to follow the same pattern.

In 1973–1974, for the first time in the history of the bilaterals, catch quotas were placed on eastern Bering Sea pollock and flatfish, and on GOA Pacific ocean perch and sablefish. Additionally, a complex array of closures was established mainly to protect U.S. crab and halibut fisheries (Table 2.7-6). The catch quotas represented the average catches of the previous three to four years and were an attempt to put the fisheries on hold so the stocks could be evaluated. Unfortunately, each country was responsible for monitoring its catch quotas, the only internationally acceptable arrangement at the time. The final round of negotiations on bilaterals before the Magnuson-Stevens Act was passed occurred in late 1974 with Japan and in mid-1975 with the U.S.S.R. The United States had negotiated an agreement with South Korea in 1972, effective through 1977, and with Poland in 1975 (Figures 2.7-4 and 2.7-5).

### 2.7.2.3 State of the Fisheries in 1976

When the Magnuson-Stevens Act was passed in 1976, groundfish fisheries were, for all practical purposes, totally foreign. Most measures were designed to lessen their impact on domestic halibut and crab fisheries. Bureau of Commercial Fisheries reports indicate that Japan, the Soviet Union, South Korea, and Taiwan landed over 1.64 million mt. The total number of foreign vessels ranged from 138 in January to 759 in June. More than 300 vessels were present each month from April to September. Japan deployed from 64 to 616 vessels, the Soviets 42 to 147, South Korea 1 to 57, and Taiwan up to 4 vessels. Japan dominated the fisheries, landing 71 percent of the total foreign catch, the Soviets 21 percent, South Korea 7 percent, and Taiwan 1 percent.



**Figure 2.7-2 Restrictions and privileges applicable to Japanese groundfish fisheries off Alaska in 1975 and 1976 under the U.S.-Japan fisheries agreement of December 1974.**

**Figure 2.7-3 Restrictions and privileges applicable to Soviet groundfish fisheries off Alaska in 1975 and 1976 under the U.S.-U.S.S.R. fisheries agreement of July 1975.**

**Figure 2.7-4 Provisions of the U.S.-Republic of Korea fisheries agreement of November 1972, effective through December 12, 1977.**

**Figure 2.7-5 Restrictions placed on Polish groundfish fisheries off Alaska in 1975 by the U.S.-Poland agreement of 1975.**

United States commercial fisheries were limited mainly to red king crab in the GOA and eastern Bering Sea, herring in coastal waters, salmon, and halibut. Very little groundfish was taken off southeastern Alaska other than sablefish and small amounts of Pacific cod. The IPHC had banned all but longline gear for halibut as early as 1944.

Some areas around the Pribilof Islands were closed to prevent foreign fishing marine debris and netting from fishing operations from harming fur seals. In the United States, the short-tailed albatross already had been declared endangered in 1970 under the Endangered Species Act (ESA), though no protective measures had been enacted in the fisheries.

#### **2.7.2.4 1977 Preliminary Groundfish Fishery Management Plans**

All bilateral agreements had to be brought into conformance with the purposes and provisions of the Magnuson-Stevens Act. Following its implementation on March 1, 1977, foreign fishing could be conducted in the new 200-nautical-mile (nm) Fishery Conservation Zone (later changed to the EEZ) only pursuant to an international treaty or a governing international fishery agreement. Governing agreements were completed with Taiwan and the U.S.S.R. in 1976 and with Japan, South Korea, and Poland in 1977. While these agreements allowed access to the EEZ, all foreign nations had to fish under the rules of preliminary fishery management plans (FMPs) that applied only to foreign fisheries.

Foreign fisheries off Alaska were managed under four FMPs, all published in the *Federal Register* in February 1977: (1) trawl fisheries and herring gillnet fishery of the eastern Bering Sea and northeast Pacific, (2) trawl fishery of the GOA, (3) sablefish fishery of the eastern Bering Sea and northeast Pacific, and (4) snail fishery of the eastern Bering Sea. The latter fishery was a very small fishery by Japan using 21 vessels that longlined with pots along the Bering Sea shelf edge northwest of the Pribilof Islands, harvesting about 3,000 mt of edible meats in the mid-1970s. Apparently, only one U.S. plant in Cordova showed any interest in snails; in 1974 it purchased about 5,000 pounds of snails caught incidental to Tanner crab. Snails, subsequently, were incorporated as an “unallocated species” in the 1981 BSAI groundfish plan and will not be discussed further. In the BSAI, optimum yields (OYs) were established for nine species or species groups: pollock, yellowfin sole, other flounders, Pacific ocean perch, sablefish, Pacific cod, herring, squid, and other species. Fishing allocations were granted to Japan, the U.S.S.R., South Korea, Taiwan, and Poland. Management measures were designed to arrest the decline in abundance of overfished stocks and allow them to rebuild. For the first time in foreign fisheries off Alaska, the entire region could be closed to all fishing by a nation that had harvested its allocation of any species. This measure had never been accepted in the former bilaterals. Additionally, trawling in certain areas was prohibited from December 1 to May 31 to protect spawning concentrations of pollock and flounders (Table 2.7-7). Foreign vessels were required to report catch and effort, monthly and annually, and provide check-in and check-out reports by radio. All vessels were required to provide accommodations for an observer at no cost to the United States.

The FMPs also significantly restricted the impact of foreign fisheries on domestic fisheries for halibut, crab, shrimp, and salmon. In the Bering Sea, for example, the demise of the halibut resource had been well documented over the previous ten years with combined U.S., Canadian, and Japanese setline catches in the Bering Sea; falling from a high of over 14,000 mt in 1962 to around 300 mt or less in 1973–1975 (BSAI FMP). Though it was caused partially by the directed setline fishery, it was aggravated by the enormous incidental catch of juvenile halibut by Japanese and Soviet trawlers. Japan had agreed under the bilaterals to not retain halibut caught in trawls east of 175°W except in INPFC Area D, where they were retained for a short period in the spring (Figure 2.7-6). The Soviets had never agreed to refrain from fishing halibut, but maintained that their vessels did not target halibut or take any as bycatch. Few observers were allowed on

**Table 2.7-7 Groundfish Trawl and Longline Closure Areas in the Bering Sea and Aleutian Islands and Gulf of Alaska, 1976, Based on Bilateral Agreements**

Area	Gear Type	Country	All Year	Months				Notes
				9–12	6–9	3–6	0–3	
Bering Sea/Aleutian Islands								
Bristol Bay Pot Sanctuary (18,742 nm <sup>2</sup> )	Trawl Trawl	Russia Japan	X X					Domestic fleet gear storage
Misty Moon grounds (2,711 nm <sup>2</sup> )	Trawl Bottom trawl All	Russia Japan Japan			X X		X	Halibut conservation
Old IPHC Area 4E (5,542 nm <sup>2</sup> )	Trawl	Russia Japan			X X			Halibut conservation
Old IPHC Area 4a (1,658 nm <sup>2</sup> )	Bottom trawl	Russia			X			Halibut conservation
Old IPHC Area 4a (6,076 nm <sup>2</sup> )	Trawl	Russia				X		Halibut conservation
Old IPHC Area 4b (9,395 nm <sup>2</sup> )	Trawl Trawl	Russia Japan			X X			Halibut conservation
Polish Western Aleutian zone (6,694 nm <sup>2</sup> )	All	Poland	X					Halibut conservation
Polish Bering Sea zone (~356,000 nm <sup>2</sup> )	All	Poland	X					Halibut conservation
Korean Non-Fishing grounds (~272,062 nm <sup>2</sup> )	All	Korea	X					Halibut conservation
Contiguous Fishery Zone (CFZ) based on land buffer 3–12 nm								
A. North side CFZ (590 nm <sup>2</sup> ) between 165°W–166°45'W	Longline Trawl	Japan Japan		X	X			Avoid gear conflicts Halibut/crab conservation
B. North side CFZ (1,855 nm <sup>2</sup> ) between 166° 45'W–169°W	Longline Trawl	Japan Japan/Russia			X	X		Avoid gear conflicts Halibut/crab conservation
C. North side CFZ (721 nm <sup>2</sup> ) between 169° W–170°W	Trawl All	Japan Russia				X X		Avoid gear conflicts Halibut/crab conservation
D. North side CFZ (807 nm <sup>2</sup> ) between 170°W–172°W	Longline Trawl	Japan/Russia	Open					Avoid gear conflicts Halibut/crab conservation
E. North side CFZ (2,296 nm <sup>2</sup> ) between 172°W–176°W	Longline	Japan				X		Avoid gear conflicts Halibut/crab conservation

**Table 2.7-7 (Cont.) Groundfish Trawl and Longline Closure Areas in the Bering Sea and Aleutian Islands and Gulf of Alaska, 1976 Based on Bilateral Agreements**

Area	Gear Type	Country	All Year	Months				Notes
				9–12	6–9	3–6	0–3	
Bering Sea/Aleutian Islands (Cont.)								
F. North side CFZ (7,341 nm <sup>2</sup> ) between 176°W–170°E	Longline Trawl All	Japan Japan Russia	Open			X X		Avoid gear conflicts Halibut/crab conservation
G. South side CFZ (892 nm <sup>2</sup> ) between 169°W–172°W	Longline	Japan	Open					Avoid gear conflicts Halibut/crab conservation
H. South side CFZ (1,942 nm <sup>2</sup> ) between 172°W–176°W	Longline	Japan				X		Avoid gear conflicts Halibut/crab conservation
I. South side CFZ (1,425 nm <sup>2</sup> ) between 176°W–178°30'W	Longline Trawl All	Japan Japan Russia			X X	X		Avoid gear conflicts Halibut/crab conservation
J. South side CFZ (2,151 nm <sup>2</sup> ) between 178°30'W–170°E	Longline Trawl All	Japan Japan Russia	Open			X	X	Avoid gear conflicts Halibut/crab conservation
Gulf of Alaska								
Polish eastern GOA zone (4,102 nm <sup>2</sup> )	Trawl	Poland					X	Avoid gear conflict with domestic halibut fleet
6 Kodiak gear areas 147°W–140°W to CFZ (4,510 nm <sup>2</sup> )	Longline/trawl Trawl	Japan Russia		X X				Avoid gear conflicts Halibut/crab conservation
3 Kodiak halibut areas (7,767 nm <sup>2</sup> )	Trawl	Japan Russia					X	Avoid gear conflict with domestic halibut fleet
Western GOA 166°W–163°30'W out to 12 miles	Longline Trawl Trawl Trawl	Japan Japan Russia Poland		X X X	X	X		Avoid gear conflicts Halibut/crab conservation

**Table 2.7-7 (Cont.) Groundfish Trawl and Longline Closure Areas in the Bering Sea and Aleutian Islands and Gulf of Alaska, 1976 Based on Bilateral Agreements**

Area	Gear Type	Country	All Year	Months				Notes
				9–12	6–9	3–6	0–3	
Contiguous Fishery Zone (CFZ)								
K. South side CFZ (1,453 nm <sup>2</sup> ) between 166°W–169°W	Longline	Japan				X		Avoid gear conflicts Halibut/crab conservation
L. CFZ (8,767 nm <sup>2</sup> ) between 147°W and 157°W <sup>a</sup>	Trawl Trawl/longline	Poland Japan/Russia		X			X	

Notes: <sup>a</sup>Russians allowed to fish between 150°–155°W (5,786 nm<sup>2</sup>)  
 CFZ – contiguous fishing zone  
 GOA – Gulf of Alaska  
 IPHC – International Pacific Halibut Commission  
 nm – nautical miles  
 nm<sup>2</sup> – square nautical miles



**Figure 2.7-6 Areas closed to trawling by Japanese vessels in eastern Bering Sea under domestic regulations by Japan, December 1, 1974 to December 31, 1975.**

Soviet vessels under the bilaterals, and the Soviets were well-known for under-reporting their catches of target species and, presumably, bycatch as well.

Regional restrictions in the BSAI FMP included a ban on retention of salmon, halibut, and crabs, and no fishing at all for shrimp, which earlier had been fished nearly to extinction by foreign fleets. Foreign fishing was not allowed within 12 nm, except at certain times of the year in parts of the Aleutian Islands (Table 2.7-8a). Specifically to protect juvenile halibut, no trawling was allowed from December 1 through May 31 in a large area north of the Aleutian Islands and east of 170°W, which later would be called the Winter Halibut Savings Area (Figure 2.7-7); and in an area just south of the Pribilof Islands known as the Misty Moon Grounds (Table 2.7-7). Further, the Bristol Bay Pot Sanctuary, north of the Alaska Peninsula running from the eastern boundary of the Winter Halibut Savings Area east to 160°W, was closed to trawling all year. These closures provided protection for juvenile halibut over an area of about 41,413 square nm, and a distance of about 420 nm along the northern coast of the Aleutian Islands and Alaska Peninsula. The Misty Moon Grounds was a holdover from the bilaterals, wherein foreign vessels were not allowed to trawl there for seven days surrounding the U.S. and Canada halibut fishery each spring to reduce gear conflicts and disturbance to prime halibut fishing grounds. The Bristol Bay Pot Sanctuary's other main purpose was to prevent conflicts between foreign mobile trawl gear and U.S. crab pots. (The only substantive regulations affecting domestic fishermen were in the taking of halibut: licenses, gear, size limits, closed nursery grounds, and catch quotas govern that fishery).

To prevent overexploitation of specific herring stocks important to the well-being of native fishermen and villages, no herring fishing was allowed east of 168°W, north of 58°N. Concerns were also raised about bycatches of chinook salmon, mainly around Unimak Island, but no specific measures were placed in the FMP other than a prohibition on salmon retention in the trawl fisheries. Further, the FMP noted that impacts on marine mammals included (1) direct impacts from trawl netting, plastic wrapping bands, and other debris around their necks or bodies and (2) indirect impacts of the fisheries competing for some of the same species of fish and shellfish used as food by the northern fur seal and other marine mammals.

In 1977, GOA fisheries were also mostly foreign, although there were domestic fisheries for sablefish mainly off southeastern Alaska and emerging interest in other groundfish species, particularly off Kodiak Island. The GOA groundfish FMP set foreign catch quotas for pollock, rockfish, flounders, Pacific cod, Atka mackerel, and other species, and set aside amounts of most species for the developing U.S. fishery. U.S. management policy for the GOA, as stated in the FMP, was to (1) ensure adequate potential for development of new U.S. fisheries, (2) protect the halibut resource so it could rebuild to provide maximum sustainable yield (MSY), and (3) allow for foreign fisheries, consistent with the other two objectives. Like the BSAI FMP, the GOA FMP had similar provisions regarding the closure of foreign fisheries on quota attainment, and identical provisions for reporting, monitoring, and observer requirements.

Bycatch protections in the GOA FMP included prohibitions on retention of halibut, salmon, shrimp, herring, and creatures of the continental shelf such as crabs (this category was termed Continental Shelf Fishery Resources or CSFR in the FMP). No trawling was allowed within 12 nautical miles (except at 169°–170°W) to prevent gear conflicts and catch of inshore species (Table 2.7-7). Six Kodiak Island Gear Areas were closed to foreign fishing from August 10 through May 31 to prevent conflicts with U.S. crab pots and halibut setlines. To protect emergent domestic fisheries in Dutch Harbor and Sand Point, no trawling at all was allowed in the Davidson Bank area. Other areas were closed throughout the GOA to reduce halibut bycatch. Three additional areas were closed around Kodiak Island within five days of the halibut fishery so the grounds would be undisturbed and gear conflicts with U.S. fishermen would be reduced. A rule change to the FMP in April 1978 further restricted foreign fishing by limiting the cod fishery west of 157°W and inside the 500-m isobath to longlines to reduce bycatch of other species and prevent gear conflicts during the halibut season.

**Table 2.7-8a Groundfish Trawl and Longline Closure Areas in the Bering Sea and Aleutian Islands and Gulf of Alaska, 1977–1987, Based on Fishery Management Plans and Amendment Regulations and Closures**

Area	Gear Type	Location	All year	Months				Notes
				9–12	6–9	3–6	0–3	
Bering Sea and Aleutian Islands								
Bristol Bay Pot Sanctuary (18,742 nm²), 1981	Trawl/longline	See Figure 2.7-8			X			Area open during open Bering Sea crab fisheries
Winter Halibut Savings Area 1 (22,671 nm²), 1981	Trawl/longline	See Figure 2.7-8			X			Area open until 2,000 mt groundfish caught
Contiguous Fishing Zone (CFZ) (50,167 nm²), 1981	All gear Foreign vessels	State baseline out to 12 miles	X					Halibut and crab conservation
CFZ exception rule (26,094 nm²), 1981	Trawl	Allowed west of 178°30'W			X			
Western Aleutian (CFZ) (2,361 nm²), 1981	All gear Foreign vessels							Open all year
Petrel Bank (8,899 nm²), 1981	Trawl	52°51'N to 178°30'W 51°15'N to 178°30'W 51°15'N to 179°00'E 52°51'N to 179°00'E 52°51'N to 178°30'W					X	Halibut and crab conservation
FCZ Longline (40,730 nm²), 1981	Longline	3 to 12 nm West of 172°00' W						Open all year
Limits for Chinook salmon for foreign fleets (20,233 nm²), 1982	Trawl	BSAI Amendment 1a See Appendix A 55°00'N to 57°00'N 165°00'W to 170°00'W			X			Closed when salmon PSC caught January 1– March 31, October 1– December 31
Crab Protection Zone 1 (8,019 nm²), 1987	Trawl	Area 512 BSAI Amendments 10 and 12a See Appendix A	X					Closed unless secretary opens cod for Port Moller Program
Crab Protection Zone 2 (5,054 nm²), 1987	Trawl	See Figure 2.7-10 Area 516 BSAI Amendments 10 and 12a See Appendix A				X		Closed unless secretary opens cod for Port Moller Program
Halibut Protection Zone 2 (66,504 nm²), 1987	Trawl	See Figure 2.7-10 BSAI Amendments 10 and 12a See Appendix A	Varies					Triggered by halibut bycatch Omitted in Amendment 25, 1994

**Table 2.7-8a (Cont.) Groundfish Trawl and Longline Closure Areas in the Bering Sea and Aleutian Islands and Gulf of Alaska, 1977–1987, Based on Fishery Management Plans and Amendment Regulations and Closures**

Area	Gear Type	Location	All year	Months				Notes
				9–12	6–9	3–6	0–3	
Gulf of Alaska								
Cape Edecumbe-Salisbury Sound, 1977	All	56°53'N to 57°24'N East of 137°00' W	X					Halibut conservation
Cross Sound Gully, 1977	All	57°50'N to 58°12'N East of 137° 25' W	X					Halibut conservation
Fairweather Gully, 1977	All	58°28'N to 140°00'W 58°48'N to 138°50'W 58°10'N to 139°11'w 58°28'N to 140°00'w	X					
Davidson Bank, 1977	All	163°04'W to 166°00'w North of 53°00'N	X					
Eastern GOA no fish zone, 1977	Trawl					X		11/1–2/16
Central GOA no fish zone, 1977	Trawl					X		2/16–6/2
Six Kodiak gear areas, 1977	Trawl			X				Crab protection
Three Kodiak halibut areas, 1977	Trawl						X	Five days before to five days after a U.S. halibut fishery
East of 140°W, 1977	All		X					Protects sablefish grounds
East of 157°W and landward of 500 m isobath, 1977	Longline		X					Protects juvenile sablefish
West of 157°W - 1977	Longline		X					Exceptions for Pacific cod longline fishery
Kodiak gear area, 1981 Lechner line	Foreign trawl	GOA Amendment 9 See Appendix B		X				Protects domestic from gear loss for crab fishermen
Pacific ocean perch rebuilding and foreign closures, 1982	All foreign trawling	East of 140°W in federal waters	X					Protects domestic Pacific ocean perch fisheries in southeast Alaska
	Nonpelagic trawling	140°–147°W GOA Amendment 10 See Appendix B						
Potgear prohibition on sablefish, 1982	Longline	Between 140°W L and Cape Addington GOA Amendment 12 See Appendix B						Protects domestic sablefish fisheries in SE Alaska

**Table 2.7-8a (Cont.) Groundfish Trawl and Longline Closure Areas in the Bering Sea and Aleutian Islands and Gulf of Alaska, 1977–1987, Based on Fishery Management Plans and Amendment Regulations and Closures**

Area	Gear Type	Location	All year	Months				Notes
				9–12	6–9	3–6	0–3	
Gulf of Alaska (Cont.)								
Kodiak trawl closure areas, 1987	All	GOA Amendment 15 See Appendix B See Figure 2.7-37	X			X	Varies	Protection of king crab stocks in spring months

Notes: CFZ – contiguous fishing zone  
FCZ – foreign closure zone  
GOA – Gulf of Alaska  
mt – metric tons  
nm<sup>2</sup> – square nautical miles

**Figure 2.7-7 Restrictions on domestic and foreign fishing for groundfish in two areas in the eastern Bering Sea.**

The sablefish FMP regulated foreign setline fisheries from southeastern Alaska down the Pacific coast off Washington and Oregon. Foreign fisheries for GOA sablefish were prosecuted by longliners from Japan, South Korea, and Taiwan. The FMP established sablefish total allowable catches (TACs) for the BSAI, GOA, and Pacific coast. All were allocated to foreign fisheries or total allowable level of foreign fishing (TALFF) in the BSAI. In the GOA, TALFF was 19,500 mt and Domestic Annual Harvest (DAH) was 2,500 mt. There was no TALFF farther south off the Pacific coast. There were no time area restrictions in the Bering Sea, but there were various year-round and temporary closures in the Aleutian Islands (Table 2.7-7). In the GOA, the foreign setline fishery had to stay outside the 500-m depth contour to reduce gear conflicts with domestic fishermen (Table 2.7-7). Also, a limit was placed on the number of vessel-days a nation could fish. Sablefish management measures were merged into the groundfish FMPs, beginning with the GOA, in 1978.

While there were no direct measures controlling the impacts of the fisheries on marine mammals and seabirds, other than restrictions on operating too close to the Pribilof Islands, each of the groundfish FMPs recognized and discussed direct and indirect affects of fishing on marine mammals and seabirds.

In summary, the FMPs continued and enhanced provisions of the bilaterals. In many respects, they established the fundamental philosophy for managing the fisheries in future years as they became completely Americanized in the late 1980s. Harvest limits were set for each main species, and fishing ceased when the limit was reached. Catch reporting and observers were required. Time-area closures and nonretention of prohibited species, such as salmon, halibut, crab, and shrimp, were the main approaches to protecting non-groundfish species that were important target species for domestic fisheries. Time-area closures were also used to protect domestic fishermen from grounds preemption and gear conflicts caused by mobile foreign trawl gear.

#### **2.7.2.5 1979–1982 Groundfish Fishery Management Plans**

A major task of the Council, which first convened in October 1976, was to develop FMPs for the groundfish fisheries to replace the FMPs (which applied only to foreign fisheries). The first FMP developed was for the GOA, implemented in January 1979; the BSAI FMP was implemented in 1982. Both plans carried forward most of the FMP management measures. Optimum yields (OYs) were set for each of the main species, and species complexes and fisheries were closed when the OY was reached. The concept of a set-aside or reserve was introduced to provide allocations to individual fisheries in season. The reserve in the GOA was 20 percent of each species. In the BSAI, the greater of 5 percent or 500 mt of each species was set aside. The OYs were distributed by management areas in both FMPs. The BSAI FMP had a specific objective to rebuild depleted groundfish stocks.

The first FMPs placed an emphasis on protecting prohibited species and the associated domestic fisheries. For example, each plan had an objective to protect halibut. The ban on retention of halibut in trawls was carried forward and some time-area closures were expanded (Figure 2.7-7 and Table 2.7-8a). Bottom trawl restrictions were applied to the foreign fisheries, and depth restrictions were set on foreign longline fishing for Pacific cod in the Winter Halibut Savings Area in the eastern Bering Sea. For the first time in the GOA, domestic trawlers had a halibut prohibited species catch (PSC) cap, which, when reached, prohibited fishing with other than off-bottom trawls. No restrictions were placed on domestic fishermen in the Bering Sea other than nonretention of PSC species.

In summary, the first FMPs for groundfish were developed mainly to control the predominantly foreign fisheries, but they established the fundamental management tools that would later be used to control domestic fishing. FMP restrictions on foreign fisheries were carried over into the FMPs expanded in many cases to further two policy objectives: (1) protecting target groundfish species, and (2) protecting bycatch species and the associated domestic fisheries. A PSC limit for halibut for domestic trawlers was implemented for the first time off Alaska in the initial GOA FMP.

#### **2.7.2.6 1982–1985 Groundfish Management**

By the end of 1985, only minor foreign fisheries, directed on pollock and Pacific cod, were being allowed in the GOA. Foreign harvesting continued in the Bering Sea. Even there, foreign trawling had ended within 20 nm of the Aleutian Islands, and foreign longlining for cod was restricted to north of 55°N and west of 170°W, depending on ice conditions. Foreign harvests dropped to less than 1 million mt in 1985. In contrast, U.S.–foreign joint ventures grew rapidly through the early 1980s. They harvested about 880,000 mt in 1985, using over 100 U.S. trawlers working within some 28 different company arrangements with such countries as Japan, South Korea, Poland, the Soviet Union, Portugal, and Iceland. Completely domestic annual processing (DAP) reached 105,000 mt in 1985, mostly by trawler catcher-processors, also called factory trawlers. Pollock stocks in the GOA-Shelikof Straits were beginning to decline rapidly.

#### **Target Species**

The most significant change in management of target species was made in the BSAI Groundfish FMP with the setting of an OY range from 1.4 to 2.0 million mt of groundfish, then using the specifications process to set TAC for each species, which, when combined, could not exceed the upper end of the OY range. A resource assessment document (RAD), developed annually beginning in 1984, for the BSAI contained a full description of each stock and its current condition. It established in one document all the information needed to set the harvest levels for each groundfish species and species complex. A similar document would later be developed for the GOA groundfish fisheries (as would an OY range and TAC-setting process), which would later set the example and standard for the development of stock assessment and fishery evaluation (SAFE) documents required of all regional fishery management councils in the United States.

#### **Bycatch Control**

The other main policy emphasis during the 1982–1985 period was on control of bycatch. By 1985, the remaining foreign fisheries were required to use off-bottom trawls year-round in the GOA, and much of the Pacific cod TALFF had been allocated to foreign longliners to reduce the bycatch that otherwise would have been incurred by trawlers. To protect halibut, southeast Alaska, east of 140°W, was closed to all foreign fishing in 1982. In the Bering Sea, a major bycatch reduction plan was established for foreign fisheries (Amendment 3) to decrease the bycatch of halibut, chinook salmon, Bairdi Tanner crab, and red king crab over a five-year period.

Additional restrictions were placed on foreign fisheries, but with their directed harvest declining rapidly, management attention began to focus more on the rapidly developing joint-venture fisheries and the completely domestic groundfish fisheries. Domestic groundfish fishermen could not retain PSC species, and had only one PSC limit, for halibut in the GOA, that could close on-bottom trawling. The PSC limit applied only to the Western and Central GOA Districts, but in 1984 it was applied to the entire GOA in response to the rapidly developing domestic trawl fisheries. Pelagic trawlers and longliners were exempted from PSC-related closures. In addition, biodegradable panels were required on all sablefish pots. Bering Sea domestic groundfish fishermen had no PSC limits, but it passed Amendment 3, the Council made a major policy statement on the need for U.S. fishermen in the Bering Sea to monitor and control their bycatch. A major PSC framework for specifying PSC and allocating it to various sectors and seasons was established for the GOA and later applied to the BSAI. Observers were required on all joint-venture processor vessels, and continued catch reporting on target and bycatch harvest as the foreign fisheries wound down.



## **Social and Economic Benefits**

The priorities in the Magnuson-Stevens Act required that fish be allocated first to totally domestic operations, then to joint ventures, and last to foreign directed fisheries (TALFF). Therefore, when a sector of the U.S. industry established that it could harvest a certain amount, that amount had to be set aside for it; thereby creating economic benefits for domestic fishermen and communities. Two other measures that directly benefitted domestic fishermen were (1) the ban on the use of trawls and pots in the southeast Alaska sablefish fishery, leaving it for longliners, and (2) expansion of the Kodiak Island Gear Areas into one large area, bounded by the “Lechner Line,” and its closure to all foreign trawling to protect the red king crab grounds.

## **Marine Mammals and Seabirds**

The OY cap in the BSAI, which was set purposely low, conferred advantages on marine mammals and sea birds by diminishing competition for food.

## **Habitat**

The Council voted to prohibit the discard of nets and debris, which often caused entanglement by and thus mortalities among marine mammals and other sea life.

## **Summary**

By the end of 1985, both groundfish plans had been on-line for at least four years, and attention was increasingly focused on the rapidly growing domestic fleet, particularly trawlers working in foreign joint ventures. Conservative management of target fisheries was still the norm for both foreign and domestic fisheries, but the main policy emphasis, in terms of time and effort spent on the development of management measures, was on bycatch control.

### **2.7.2.7 1986–1991 Groundfish Management**

During the five years between 1986 and 1991, the groundfish fisheries became totally domestic. The last years of foreign-directed fishing in the GOA and BSAI were 1986 and 1987, respectively. Foreign joint ventures peaked in 1987, and their last years of operation in the GOA and the Bering Sea were 1988 and 1991, respectively. Americanization of the fishery happened more quickly than anyone had anticipated, and much of the management effort turned to determining how to restrict the impacts of the burgeoning domestic groundfish fleet on traditional fisheries for crab, halibut, salmon, and herring. Whereas the cumulative impacts of the bilaterals, the FMPs, and first FMPs in controlling bycatch had been aimed directly at the foreign fleet, in 1986–1991 managers had to rapidly address bycatch problems caused by the domestic fleet, protect target species, and still allow for continued development of domestic fisheries.

## **Target Species**

The basic management measures were already in place for the domestic fleet. Conservative harvest quotas (e.g., quotas set low due to uncertainty in state statutes) that had been applied to the foreign fleet were now applied to the domestic fleet. The GOA FMP was revised to incorporate an OY range and individual TACs within that range, mirroring the BSAI FMP. Overfishing definitions were also added to the BSAI FMP. The pollock stock in the western and central GOA declined significantly in 1986–1990, and the Council set lower harvest levels every year in response to scientific advice. The Council also rebuffed several efforts to raise the OY limit in the BSAI to prolong the foreign joint-venture operations. The Council chose not to revise the OY limits because of concerns about the amount of groundfish taken outside the EEZ, the uncertainties in the

amount of pollock and other groundfish species to support Steller sea lions, other marine mammals and seabirds, and the reliability of methodology used to determine ABCs, among others.

The demise of the foreign directed fisheries and joint ventures left a large gap in at-sea data collection. Observers had been required on all foreign fishing and processing vessels, covering activities and providing verification of catches. There was no observer coverage on the growing domestic fleet, despite some provisions enacted calling for domestic vessels to take observers in certain areas when requested by NMFS. In the late 1980s, a small pilot observer program, funded partially by industry and government, provided observers for a half-dozen volunteer trawlers in the GOA and BSAI. Frustrated by the lack of observer coverage, which by then dominated the fisheries off Alaska, and with little federal funding available, the Council voted to impose an industry-paid, comprehensive Observer Program on the domestic fleet beginning in 1990. It required 100 percent observer coverage on all vessels over 124 ft and 30 percent coverage on those between 60 ft and 124 ft. This program provided comprehensive catch verification and bycatch monitoring. It has endured over the past 10 years and is a critical component of North Pacific stock management. It provides the basis for control of target species harvest, and bycatch monitoring and interactions with marine mammals. Without the Observer Program, monitoring of deployment of the complex innovative bycatch management regimes now used in the domestic fisheries would have been difficult, if not impossible.

### **Bycatch Control**

As noted above, bycatch control in the domestic fisheries was a major policy emphasis in 1986–1990. Extensive closures were imposed on domestic trawlers around Kodiak Island and in the eastern Bering Sea to protect red king crab (Figures 2.7-8 and 2.7-9). Some closures were complete and year round; others were for parts of the year and applied just to bottom trawling (Table 2.7-8b). Bycatch limits were set for halibut, red king crab, and bairdi Tanner crab limits. At first, these limits were applied only to the joint-venture flatfish fisheries, but by 1990 they were widely applied to the entire domestic fleet, through a complex allocation of PSC by area, season, gear, and fishery sector, including both trawl and fixed gear. These PSCs closed down the fisheries for varying lengths of time. In 1990, a PSC limit was placed on herring for the trawl fleet. Also during 1986–1990, the Council and NMFS developed the directed fishing standards that limit the amounts of a groundfish species that could be retained after the directed fishery for that species had closed. These measures allowed directed fisheries to be protected by bycatch-related closures in other directed fisheries. For example, the relatively high-bycatch fisheries for rock sole and yellowfin sole, when closed, would not impact continuation of the low-bycatch pollock fisheries. In summary, the complex program for controlling bycatch in domestic fisheries was established in 1986–1990, although it would be fine-tuned in years to come.

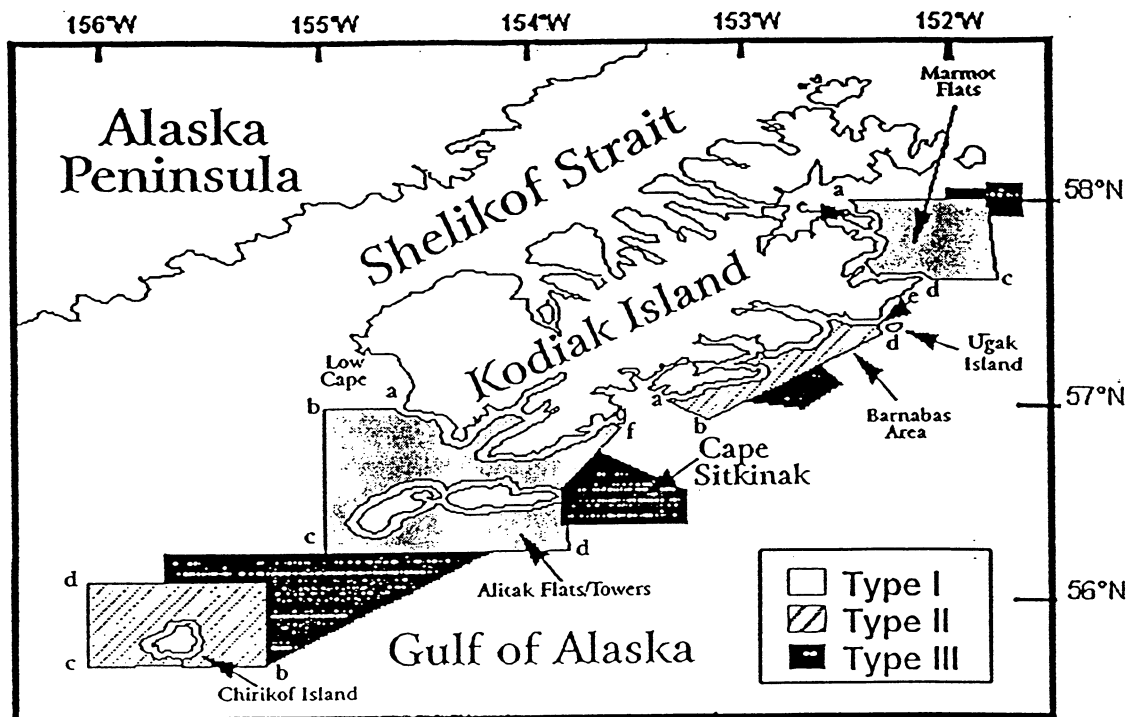


Figure 2.7-8 Kodiak Island nonpelagic trawl gear closures. Source: NPFMC

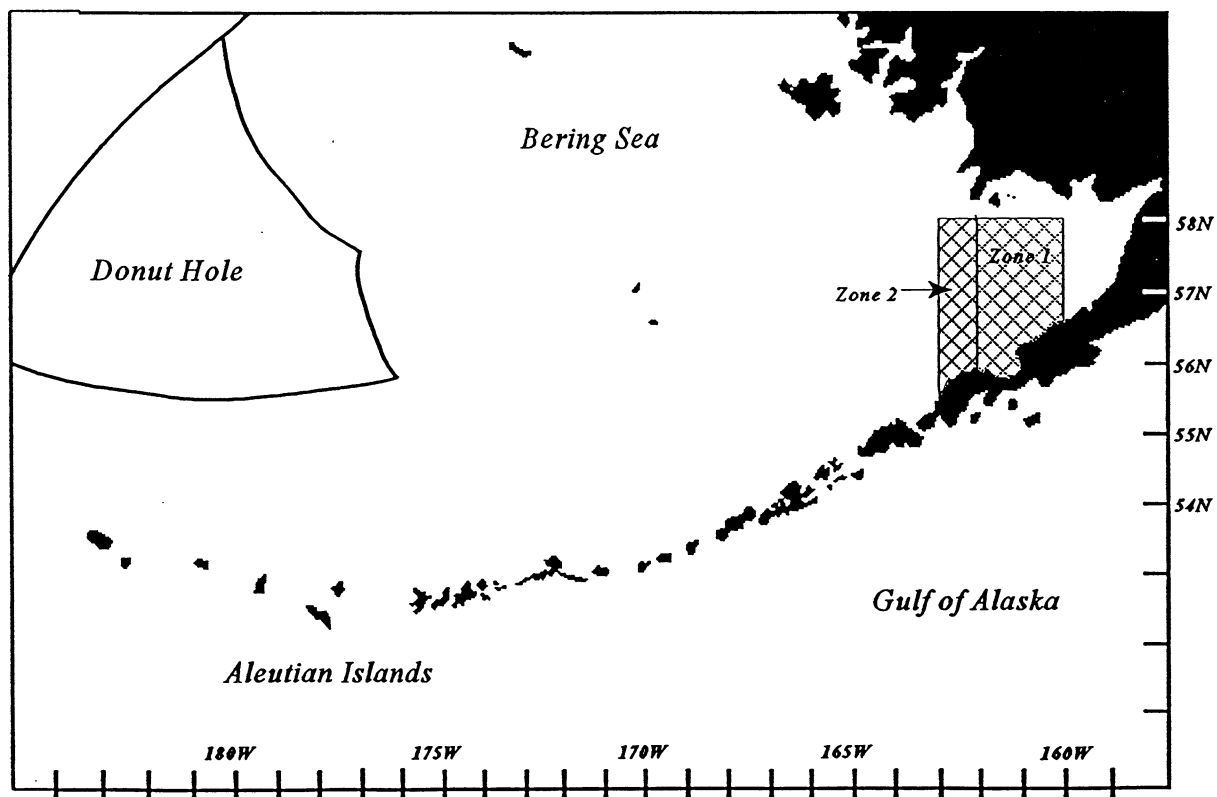


Figure 2.7-9 Crab and halibut protection zones. Source: NPFMC

**Table 2.7-8b Groundfish Trawl and Longline Closure Areas in the Bering Sea and Aleutian Islands and Gulf of Alaska, 1988–1998**

Description	Gear Type	Location	Months					Notes:
			All year	9-12	6-9	3-6	0-3	
Bering Sea and Aleutian Islands								
Herring Savings Areas (3) Amendment 16a 1991	Trawl	See Appendix A, Amendment 16a for details						Based on PSC limit (1% of biomass) attained
Summer Area 1, 6,553 nm <sup>2</sup>		South of 57°N between 162°– 164°					x	June 15–July 1
Summer Area 2, 12,377 nm <sup>2</sup>		South of 56°30'N between 164°–167°W					x	July 1–August 15
Winter Area 11, 195 nm <sup>2</sup>		Bounds of 58°–60°N and 172°–175°W			x			September 1–March 1
Walrus Islands Closure Amendment 17, 1992 900 nm <sup>2</sup>	All types	3–12 nm around Round Island, The Twins Is. and Cape Peirce (58°33' and 161°43'W)				x		Walrus Protection April 1–September 30th
Catcher Vessel Operation Area (CVOA) 1995 Amendment 18, 17,615 nm <sup>2</sup>	All types	South of 56°00'N between 163°00' and 167°30'W						Pollock B season prohibited by offshore sector
Steller Sea Lion Protection Areas Amendment 20, 1992	Trawl	See Appendix A 1) 5,800 nm <sup>2</sup> 2) 5,100 nm <sup>2</sup>	x				varies	1) All year within 10 nm of 27 rookeries 2) Seasonal within 20 nm of 8 rookeries
Pribilof Islands Habitat Conservation Area Amendment 21a, 1995 7,000 nm <sup>2</sup>	Trawl	See Appendix A, Amendment 21a for details	x					

**Table 2.7-8b (Cont.) Groundfish Trawl and Longline Closure Areas in the Bering Sea and Aleutian Islands and Gulf of Alaska, 1988-1998**

Description	Gear Type	Location	Months					Notes:
			All year	9-12	6-9	3-6	0-3	
Bering Sea/ Aleutian Islands								
Chinook Salmon Savings Area Amendment 21b,1995 9,000 nm <sup>2</sup>	Trawl	See Appendix A, Amendment 21b for details					Varies	Closed if bycatch limit reached 48,000
Chum Salmon Savings Area Amendment 35,1995 5,000 nm <sup>2</sup>	Trawl	See Appendix A, Amendment 35 for details					x	Closed if bycatch limit reached 42,000
Bristol Bay Red King Crab Savings Area Amendment 37,1996 4,000 nm <sup>2</sup>	Bottom trawl	See Appendix A, Amendment 37 for details	x					Crab protection
Near Shore Bristol Bay Closure Area Amendment 37,1996 15,000 nm <sup>2</sup>	Trawl	E of 162°W with the exception of block bounded by 159° to 160°W and 58° to 58°43'N	x <sup>a</sup>					Crab protection
Opilio Bycatch Limitation Zone (COBLZ) Amendment 40,1996 90,000 nm <sup>2</sup>	Dependent on which gear types exceeds their PSC	See Appendix A, Amendment 40 for details					Varies	Closed to specific fisheries when PSC reached
Gulf of Alaska								
Stellar Sea Lion Buffer Zones Amendment 25,1992	Trawl		x					Within 10 nm of Stellar Sea lion rookeries 20 nm during pollock "A" season
Permanent Kodiak Crab Protection Zones Amendment 26,1993	Trawl	See Attachment A Type I Type II Type III	x				x Varies	
Southeast Alaska Trawl Closure 1998 52,600 nm <sup>2</sup>	Trawl		x					Habitat protection

Notes: <sup>a</sup>Except block that would remain open April 1–June 15  
nm – nautical miles

## Social and Economic Benefits

The Act's allocation priorities to domestic fishermen continued the favorable conditions for growth of the U.S. fishing industry off Alaska, and commensurate benefits to the communities and individuals that depended on it. "Americanization" of the fisheries happened much faster than had ever been anticipated. Bycatch controls and time area closures to minimize grounds preemption and gear conflicts with traditional fisheries for halibut and crab also conferred economic benefits to domestic fisheries.

## Marine Mammals and Seabirds

Closures of groundfish fishing to protect walrus were implemented around Round Island, the Twins, and Cape Peirce from 3 to 12 miles from April 1 through September 30, beginning in 1990 (Table 2.7-8b). That same year, NMFS listed Steller sea lions as threatened under the ESA and implemented several measures to reduce direct impacts on them, such as a ban on shooting at sea lions, reductions in incidental kill quotas, and 3-mile buffer zones around principle rookeries. During those five years, the Council voted against raising the BSAI 2-million-mt groundfish cap, which reduced the probability of adverse impact of fishing harvests on food abundance for marine mammals and seabirds. Additionally, NMFS began monitoring fishery interactions with seabirds and marine mammals, helped significantly by the comprehensive industry-paid Observer Program.

## Habitat

NMFS's policy on habitat was added to both the BSAI and GOA groundfish plans in 1986. In 1988, the Council approved its own habitat policy and established a habitat committee to review permit requests for significant developments that might impact fish habitat. The extensive trawl closures enacted in the GOA and in the BSAI also conferred protection on habitat.

## Summary

The major new policy initiatives during 1986–1990 were, in descending order, control of bycatch, protection for marine mammals, and protection of habitat. Conservative management and control of target groundfish species harvests continued. The strong foundation for protecting target species had been established in the earlier period for foreign fisheries and those measures, reinforced by the industry-paid comprehensive Observer Program beginning in 1990, were continued in the domestic fleet as it expanded.

### **2.7.2.8 1991–1995 Groundfish Management**

Beginning in 1991, the groundfish fisheries were fully domestic and very overcapitalized; they grew rapidly. By 1995, the groundfish fleet contained 1,545 vessels, including 1,159 vessels fishing with hook-and-line gear, 263 with pots, and 264 with trawls, with some of the vessels using more than one gear type: about 120 were catcher processors. The groundfish fleet vessels came mainly from communities in Alaska, Washington, and Oregon. Their total groundfish harvest in 1995 was approximately 2.1 million mt, with 90 percent coming from the BSAI management area (Figure 2.7-10). The overall catch was 65 percent pollock, 15 percent Pacific cod, 12 percent flatfish, 4 percent Atka mackerel, 2 percent rockfish, 1 percent sablefish, and lesser amounts of other species. Intense allocation disputes arose over pollock and Pacific cod. For the BSAI actions were taken to allocate pollock and Pacific cod between the inshore and offshore processing sectors and between gear groups.

The problem of excess fishing capacity in most sectors of the groundfish fleet began to be addressed during this period as well.

# Alaska Groundfish

## Biomass and Catch

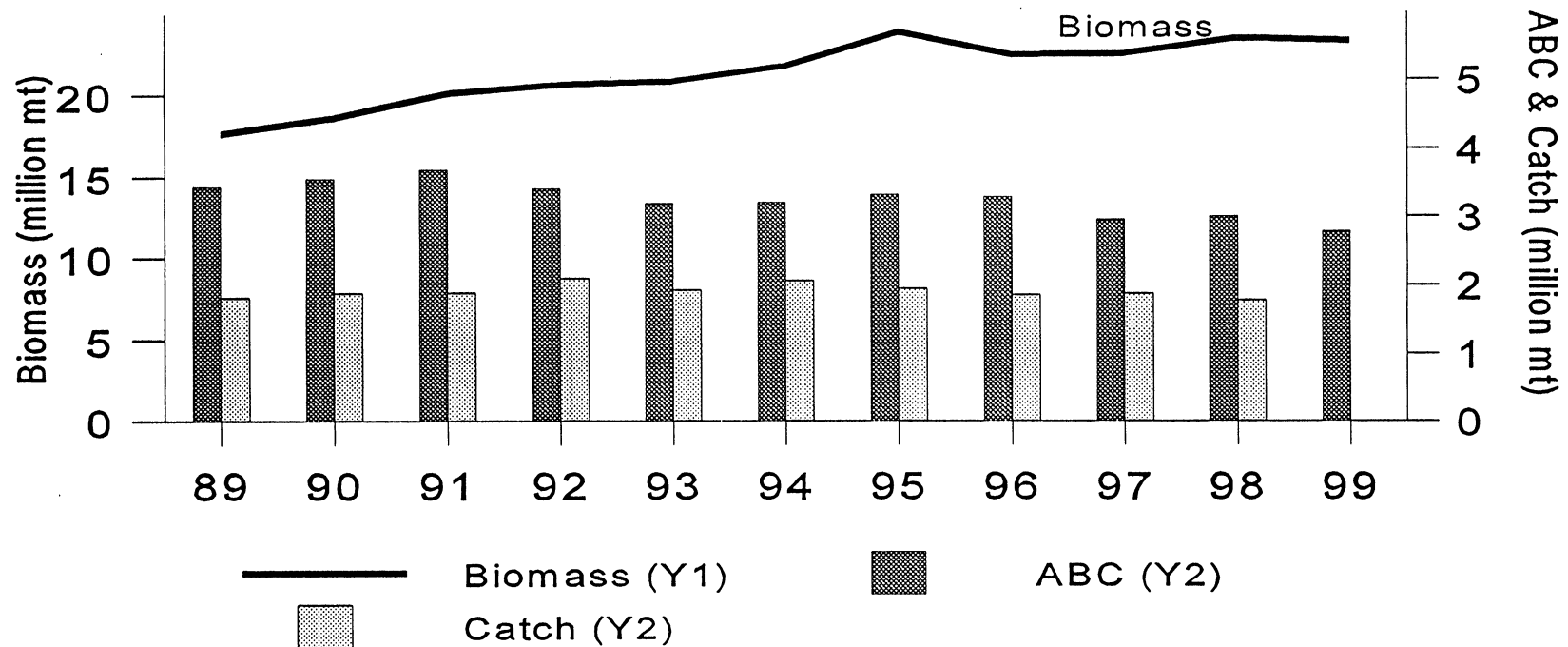


Figure 2.7-10 Alaska groundfish biomass and catch. Source: NPFMC

## **Target Species**

New overfishing definitions were incorporated in the FMPs, a ban on pollock roe stripping was implemented, and the Bogoslof District in the Bering Sea was established as a separate management area for pollock. This latter measure was intended to isolate and control harvests of the component of the pollock stock that was associated with the Aleutian Basin pollock stock, which at the time was being heavily fished in central Bering Sea international waters by foreign fleets displaced from the U.S. EEZ. Additionally, the Aleutian Islands management area was partitioned into three separate areas to manage Atka mackerel and later pollock. In the GOA, a rebuilding plan was implemented for Pacific ocean perch stocks, which were decimated by Soviet fisheries in the 1960s and have yet to recover. These new measures were overlain on the existing conservative harvest management system.

## **Bycatch Control**

Various restrictions were placed on the construction of groundfish gear to minimize bycatch not only of PSC species, but also of juvenile components of the groundfish stocks that had no market value, and, therefore, were discarded. For example, biodegradable panels and halibut excluder devices were required on all groundfish pots. Other restrictions included minimum mesh size in trawls, careful release mechanisms for the longline fishery, and refined definitions of pelagic trawls. Seines and gillnets were prohibited in the groundfish fisheries because of their indiscriminate bycatch. The Vessel Incentive Program (VIP) was applied to the fisheries, establishing bycatch rate standards for PSC species. Hotspot authority was granted to allow NMFS to close areas of high bycatch. A herring PSC limit was applied to the trawl fishery in the BSAI, and halibut PSC monitoring changed to a mortality basis (Table 2.7-8b). PSC limits were established for chum salmon in the Bering Sea and more Bering Sea areas were closed to protect red king crab (Table 2.7-8b). The chinook salmon bycatch donation program to food banks was approved, and a large area around the Pribilof Islands was closed to trawling to protect halibut and crab and for other purposes (Table 2.7-8b).

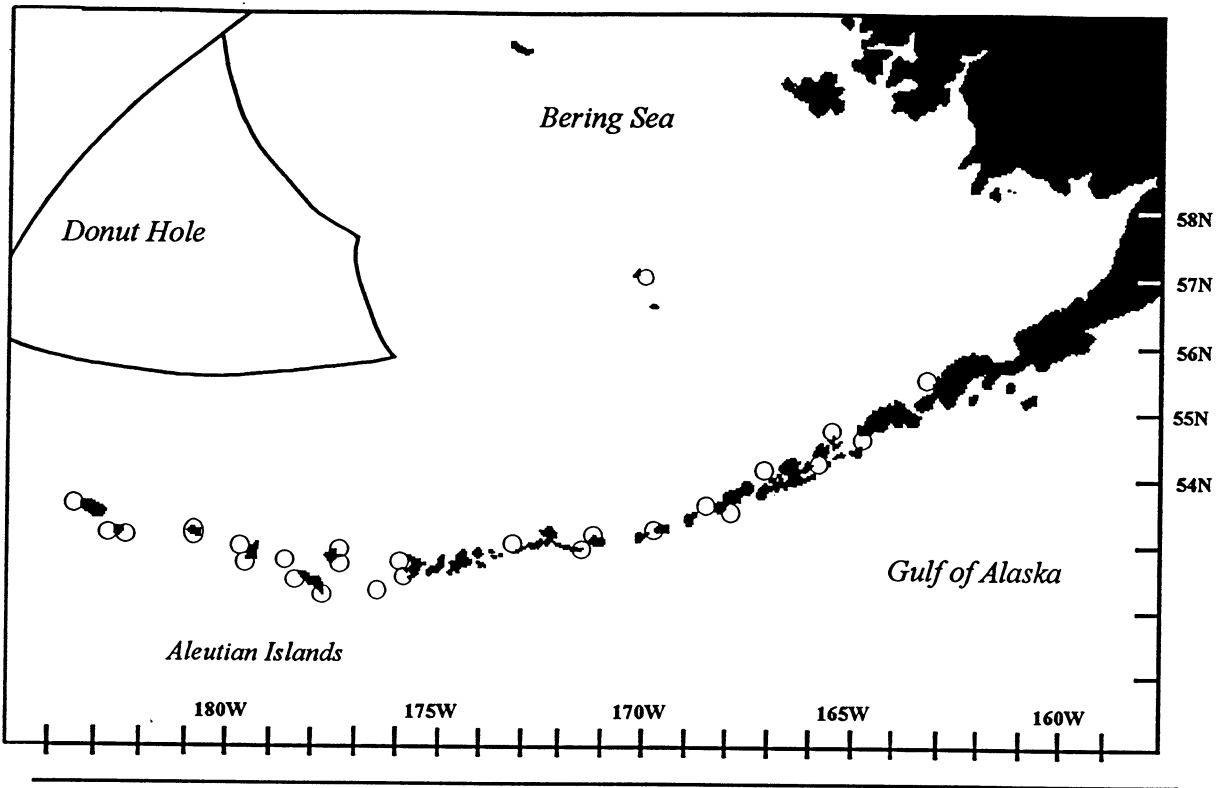
## **Social and Economic Benefits**

Measures enacted during this period addressed the intense competition for groundfish resources. Pollock and Pacific cod were allocated between the offshore and inshore sectors, and a Community Development Quota (CDQ) Program was established in the BSAI, allocating 7.5 percent of the pollock and sablefish to six groups of communities along the Bering Sea coast. Capacity problems in the groundfish and crab fisheries were addressed with a moratorium on further entry, beginning in 1995, and an Individual Fishing Quota (IFQ) Program was implemented in 1995 for the fixed-gear sablefish and halibut fisheries. The Pribilof Islands trawling closure, described above, conferred benefits on local residents.

## **Marine Mammals and Seabirds**

The Pribilof Islands closure also provided protection for marine mammals and seabirds. The 1991–1995 period also saw broad implementation of closures to further protect Steller sea lions. For example, NMFS closed areas year-round to trawling within 10 miles of 37 Steller sea lion rookeries, and to within 20 miles during the pollock A season (January 20–April 15) around five rookeries in the BSAI. There were comparable closures in the GOA (Figure 2.7-11). To reduce competition for prey and avoid localized depletion, the pollock TAC was spread over three areas, and the amount of excess pollock that could be taken in a quarter was limited. In 1993, the Council reduced the GOA pollock limit significantly well below the biologically safe harvest level in order to provide food for sea lions and for ecosystems needs. The pollock acceptable biological catch (ABC) for 1993 was 160,000 mt, but the harvest level was set at only 111,000 mt. In March 1993, NMFS published a sea lion recovery plan and in August designated Steller sea lion critical habitat. The measures taken to





#### Year-Round 10-mile Closures

Island	From Latitude	Longitude	To Latitude	Longitude
Sea Lion Rookeries	55° 28.0'N	163° 12.0'W		
Ugamak Island	54° 14.0'N	164° 48.0'W	54° 13.0'N	164° 48.0'W
Akun Island	54° 18.0'N	165° 32.5'W	54° 18.0'N	165° 31.5
West Akutan Island	54° 03.5'N	166° 00.0'W	54° 05.5'N	166° 05.0
West Bogoslof Island	53° 56.0'N	168° 02.0'W		
Ogchul Island	53° 00.0'N	168° 24.0'W		
Adugak Island	52° 55.0'N	169° 10.5'W		
Walrus Island	57° 11.0'N	169° 56.0'W		
Yunaska Island	52° 42.0'N	170° 38.5'W	52° 41.0'N	170° 34.5
West Segum Island	52° 21.0'N	172° 35.0'W	52° 21.0'N	172° 33.0

Figure 2.7-11 Steller sea lion protection areas. Source: NPFMC

### Year-Round 10-mile Closures

Island	From Latitude	Longitude	To Latitude	Longitude
West Agligadak Island	52° 06.5'N	172° 54.0'W		
Kasatochi Island	52° 10.0'N	175° 31.5'W	52° 10.5'N	175° 29.0
West Adak Island	51° 36.5'N	176° 59.0'W	51° 38.0'N	176° 59.5
West Gramp Rock	51° 29.0'N	178° 20.5'W		
Tag Island	51° 33.5'N	178° 34.5'W		
Ulak Island	51° 20.0'N	178° 57.0'W	51° 18.5'N	178° 59.5
West Semisopochnoi	51° 58.5'N	179° 45.5'E	51° 57.0'N	179° 46.0
East Semisopochnoi	52° 01.5'N	179° 37.5'E	52° 01.5'N	179° 39.0
East Amchitka Island	51° 22.5'N	179° 28.0'E	51° 21.5'N	179° 25.0
East Amchitka Island	51° 32.5'N	178° 49.5'E		
Ayugadak Point	51° 45.5'N	178° 24.5'E		
Kiska Island	51° 57.5'N	177° 21.0'E	51° 56.5'N	177° 20.0
East Kiska Island	51° 52.5'N	177° 13.0'E	51° 53.5'N	177° 12.0
East Buldir Island	52° 20.5'N	175° 57.0'E	52° 23.5'N	175° 51.0
East Agattu Island	52° 24.0'N	173° 21.5'E		
Agattu Island	52° 23.5'N	173° 43.5'E	52° 22.0'N	173° 41.0
East Attu Island	52° 54.5'N	172° 28.5'E	52° 57.5'N	172° 31.5'E

### Seasonal 20-mile Closures

Sea Lion Rookeries	55° 28.0'N	163° 12.0'W		
Akun Island	54° 18.0'N	165° 32.5'W	54° 18.0'N	165° 31.5
West Akutan Island	54° 03.5'N	166° 00.0'W	54° 05.5'N	166° 05.0
West Ugamak Island	54° 14.0'N	164° 48.0'W	54° 13.0'N	164° 48.0
West Seguam Island	52° 21.0'N	172° 35.0'W	52° 21.0'N	172° 33.0
West Agligadak Island	52° 06.5'N	172° 54.0'W		

Note: The bounds of each rookery extend in a clockwise direction from the first set of geographic coordinates, along the shoreline at mean lower low water, to the second set of coordinates; if only one set of geographic coordinates is listed, the rookery extends around the entire shoreline of the island at mean lower low water.

**Figure 2.7-11 (Cont.) Steller sea lion protection areas. Source: NPFMC**

protect sea lions at this time were the first pervasive restrictions on fishing fleet operations. Regarding seabirds, there were no restrictions on fisheries except for the Pribilof Island closure, but observers on crab vessels did receive training in seabird recognition.

## **Habitat**

New measures to protect habitat during this period include the aforementioned Pribilof Islands closure, and new bottom trawling closures.

## **Summary**

During the five years from 1991 to 1995, conservative harvest strategies for groundfish species continued and the Pacific ocean perch rebuilding plan was implemented for the GOA. Allocation and fishing capacity issues were in the forefront during this period, although refinements were made to bycatch controls and PSC limits. Major new policy initiatives were implemented to protect Steller sea lions as it became more evident that competition for prey may be significant in the long-term recovery of western Alaska sea lion populations.

### **2.7.2.9 1996–2000+ Groundfish Management**

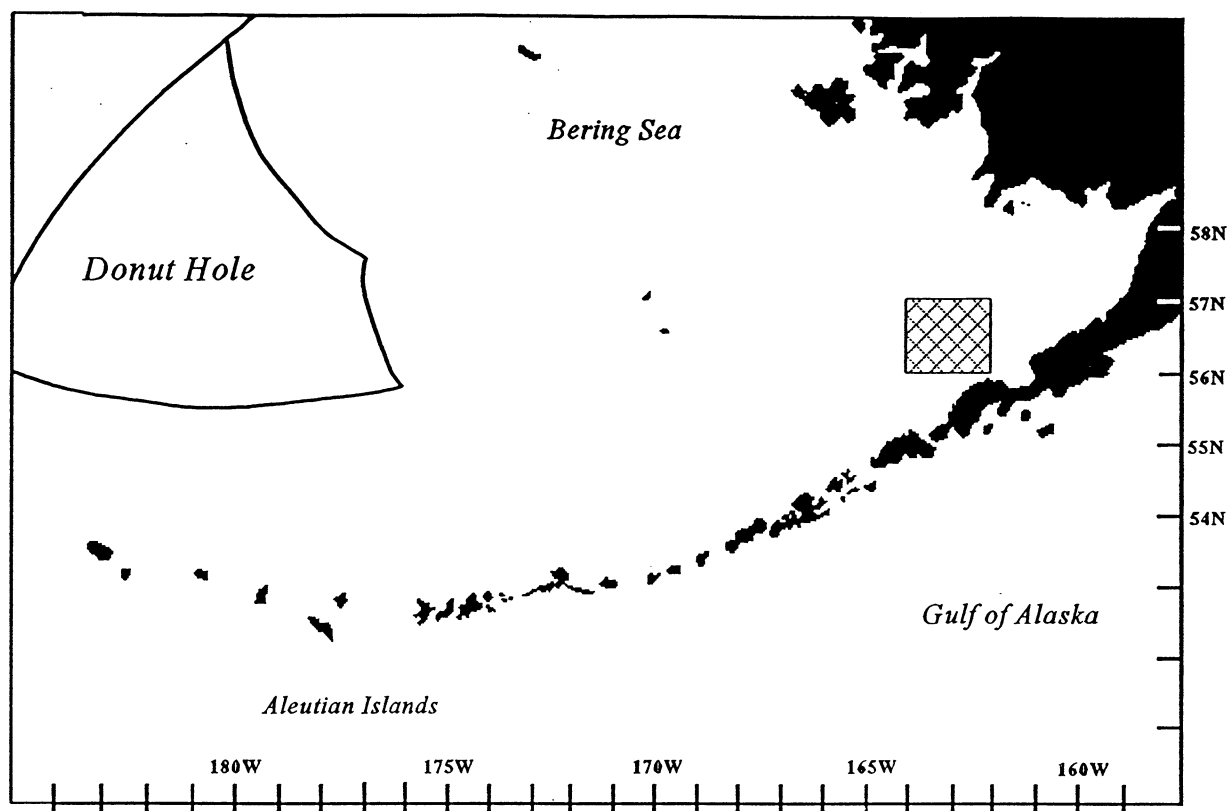
Groundfish harvests during the second half of the 1990s were around 1.9 million mt per year. Their value surpassed any other fishery off Alaska. In 1998, for example, groundfish harvests were valued at the ex-vessel level of \$385 million, compared to shellfish, \$219 million; salmon, \$243 million; halibut, \$94 million; and herring, \$11 million. The total number of vessels active in the groundfish fishery declined from 1,545 in 1995 to 1,273 in 1998, the latest year for which such data are available. Against a backdrop of conservative harvest strategies, managers implemented additional restrictions on several groundfish gears and sectors to reduce their impacts on each other and on marine mammals, seabirds, and habitat. Spurred by the Sustainable Fisheries Act (SFA) of 1996, additional measures were implemented to reduce bycatch and waste. New PSC limits were introduced and discard of some species banned. The 1998 AFA also changed the way pollock fisheries were conducted and allowed for the formation of fishing cooperatives.

## **Target Species**

Conservative harvest strategies were continued to protect target species in the groundfish complex off Alaska. Overfishing definitions were revised in response to new SFA-mandated guidelines. The GOA rebuilding plan for Pacific ocean perch was revised, and a major new program called Improved Retention and Improved Utilization (IRIU) was approved for pollock and Pacific cod in the BSAI and for the GOA. IRIU requires fishermen to land all pollock and cod harvested, including juveniles and other unmarketable fractions. Because there is little value in small fish, it is hoped that fishermen will avoid areas where juveniles are caught in large concentrations, thus avoiding the economic costs of landing an unmarketable part of the resource. The overall intent of the program is to reduce bycatch and discarding of juveniles, and thus help the stocks remain robust. Beginning in 2003, IRIU will be applied to Bering Sea yellowfin sole and rock sole, and to GOA shallow water flatfish species.

## **Bycatch Controls**

More areas in Bristol Bay were closed to trawling to protect red king crab and the red king crab PSC was revised (Table 2.7-8b and Figure 2.7-12). PSC limits were established for opilio Tanner crab and chinook salmon (Figure 2.7-13). The bairdi Tanner crab PSC was revised to be based on abundance. The pollock fisheries were restricted using off-bottom trawls, and IRIU was implemented to reduce bycatch and discard in



### **Bristol Bay Red King Crab Savings Area**

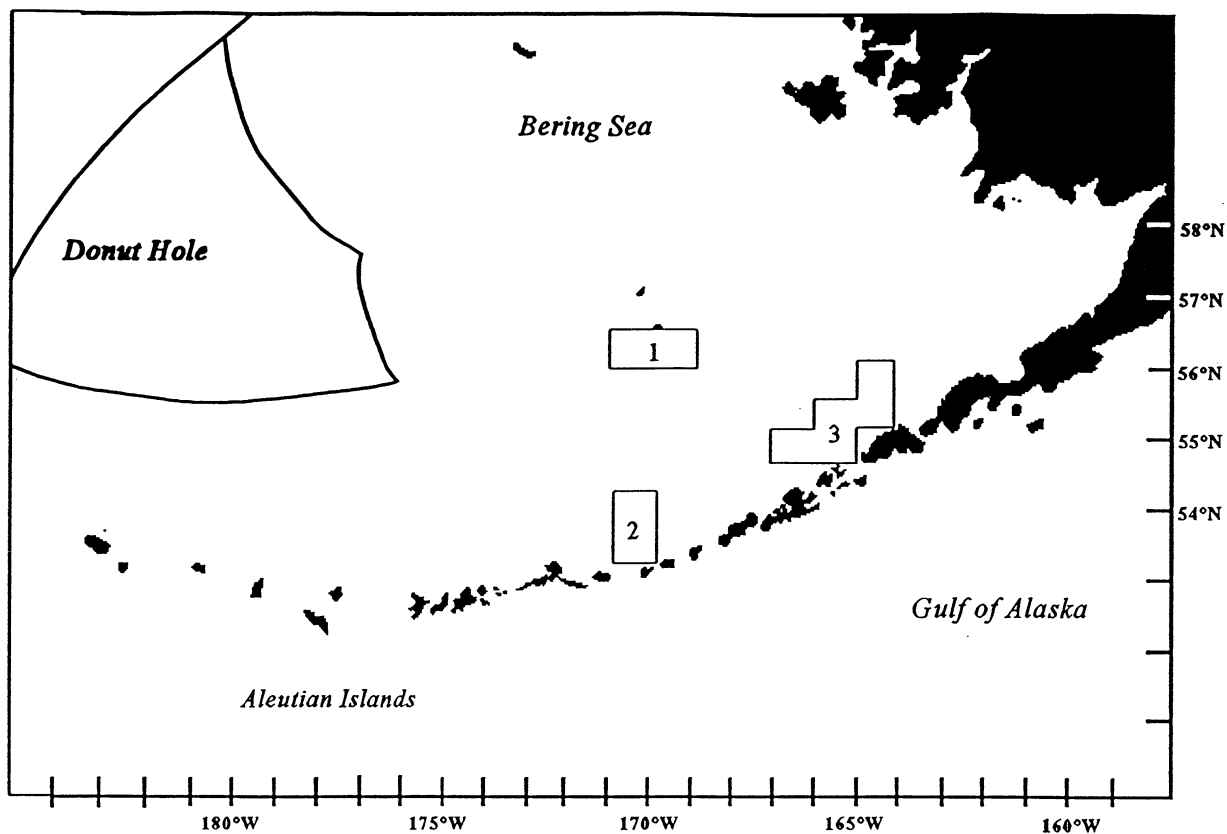
Rationale for Closure: Closed to protect red king crab population and habitat.

Origin: Implemented as an emergency rule January 20, 1995. Adopted as part of Amendment 37 in June 1996.

Description of Area: Non-pelagic trawling is prohibited at all times in the EEZ within the area bounded by a straight line connecting the following pairs of coordinates in the following order:

56°00', 162°00'  
56°00', 164°00'  
57°00', 164°00'  
57°00', 162°00'  
56°00', 162°00'

**Figure 2.7-12 Bristol Bay red king crab savings area. Source: NPFMC**



### Chinook Salmon Savings Area

Rationale for Closure: To reduce excessive bycatch of chinook salmon in groundfish trawl fisheries.

Origin: Adopted as Amendment 21b by the Council on April 24, 1995.

Description of Area: All trawling is prohibited in the Chinook Salmon Savings Area upon attainment of a bycatch limit of 48,000 chinook salmon taken in the BSAI. A closure would remain in effect through April 15, then reopen for the remainder of the year. The nine blocks consist of 3 district areas with the following coordinates:

Area 1: 56°30' N., 171° W.; 56°30' N., 169° W.; 56° N., 169° W.; 56° N., 171° W.; 56°30' N., 171° W.

Area 2: 54° N., 171° W.; 54° N., 170° W.; 53° N., 170° W.; 53° N., 171° W.; 54° N., 171° W.

Area 3: 56° N., 165° W.; 56° N., 164° W.; 55° N., 164° W.; 55° N., 165° W.; 54°30' N., 165° W.; 54°30' N., 167° W.; 55° N., 167° W.; 55° N., 166° W.; 55°30' N., 166° W.; 55°30' N., 165° W.; 56° N., 165° W.

Figure 2.7-13 Chinook salmon savings area. Source: NPFMC

the pollock and cod fisheries, and for several flatfish species beginning in 2003. A ban on directed fisheries for forage fish was implemented in 1998. A ban on the discard of demersal shelf rockfish in fixed-gear fisheries off southeast Alaska was approved, but has not yet been implemented.

### **Social and Economic Benefits**

Measures directly affecting the social and economic benefits in the fisheries included an extension of inshore-offshore processing allocations of cod and pollock, extension and expansion of the Community Development Quota Program in the BSAI, a small jig gear allocation of Atka mackerel in the Aleutian Islands, and Pacific cod allocations among various gear sectors in the Bering Sea. The moratorium on new entrants into the groundfish and crab fisheries was superseded by the License Limitation Program (LLP) in 2000, and the sablefish and halibut fixed-gear fisheries continued under the IFQ program, which commenced in 1995. The AFA led to a reduction in fishing capacity for pollock, and a structural change in the fishery through the introduction of cooperatives for the inshore, mothership, and offshore fleet. These changes are still playing out in the fisheries, and cooperatives may be applied to species other than pollock.

### **Marine Mammals and Seabirds**

In May 1997, NMFS reclassified Steller sea lions into two distinct populations, separated at 144°W. The eastern population remained listed as threatened under the ESA, but the western population was listed as endangered. This resulted in implementation of an extensive new array of fisheries restrictions, particularly on the pollock and Atka mackerel fleets. These measures were designed to spread the harvests out over time and space, to avoid localized depletion of prey for sea lions, and to greatly reduce the amount of harvest from areas designated as critical habitat for Steller sea lions. Additional rookeries and haulout areas were closed to fishing, and the entire Bogoslof and Aleutian Islands management areas were closed to pollock fishing (Table 2.7-8b). Further, a closure of directed fishing for forage fish was enacted to allow more prey items to be available for sea lions. Regarding seabirds, the U.S. Fish and Wildlife Service (USFWS) concluded in 1997 that the groundfish fisheries were having an effect on short-tailed albatross and established an incidental take of up to four birds during 1997 and 1998 in the longline groundfish fisheries. As a result, seabird avoidance measures were implemented in the longline fishery for groundfish and halibut: baited hooks must sink immediately, offal must be discharged aft of the hauling station, and streamer lines and avoidance gear must be used. The measures were expanded in 1999. In 2000, NMFS issued changes to observer data collection and vessel logbook information to collect data on types of seabird avoidance measures used on each haul and their effectiveness.

### **Habitat**

Further protection was given to habitat with additional closures to bottom trawling, and the addition of identification and description of essential fish habitat to both groundfish management plans, as required by the SFA. For instance, Sitka Pinnacles Marine Reserve, and area totaling 2.5 square nm in the GOA off Cape Edgumbe, is closed to groundfish fishing or anchoring by vessels holding a federal fisheries permit. Additionally, certain species of coral and sponges associated with habitat areas of particular concern were protected from commercial fisheries, and a stakeholder process has been initiated to further identify and protect essential fish habitat and areas of particular concern.

### **Summary**

The major policy emphases from 1996 to 2000 have been to control and reduce the impacts of very robust groundfish fisheries on other fisheries, on marine mammals and seabirds, on habitat, and on the ecosystems as a whole. The most innovative new measure in this period is the complete ban on discards of pollock and